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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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FIFTY-SECOND YEAR
Published Every Thursday by the
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PAPER TRADE JOURNAL

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PAPER INDUSTRY ENDORSES FORESTRY BILL

R. S. Kellogg, Chairman of the National Forestry Program Committee, Makes Plea for Clarke Forestry Bill Before House of Representatives Committee on Agriculture—Warren B. Bullock Says American Paper and Pulp Association Favors It—Representative Clarke E xplains Legislation to Committee—Letter Read From American Newspaper Publishers

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 26, 1924.—Hearings were held yesterday and today before the House Committee on Agriculture in connection with the Clarke forestry bill. No opposition was evidenced, the only witnesses appearing favored the bill as drawn.

Representative Clarke was the first witness and he went over the bill section by section, explaining it briefly. He called the committees particular attention to the forest fires of the country and stated that there are about 50,000 of them a year. He said that in his opinion, the Clarke bill would be a great step toward forest conservation. In this connection he pointed out the lack of reforestation in China and its disastrous results. The motive of the bill, Mr. Clarke said, is to co-operate with the States in their forest fire and other forest protection legislation. He said that Secretary of War Weeks along with many others have endorsed the bill.

Another witness before the committee was R. S. Kellogg, chairman of the National Forestry Program Committee who gave the bill his strong endorsement.

Mr. Kellogg said in part:

Nothing new or revolutionary is proposed in the pending legislation. It is the logical outcome and culmination of 50 years' consecutive effort to conserve our forest resources.

What Any Adequate Plan Must Include

There is now substantial agreement upon facts and principles and it is clearly demonstrated by overwhelming weight of evidence that any adequate plan for the maintenance of our timber supply must include:

Effective fire prevention on both public and private forest land.

Scientific utilization of forest products.

Forest planting upon large areas of denuded land.

A substantial proportion of well distributed forest land in public ownership upon which there may be grown the older classes and larger sizes of timber which we cannot expect in sufficient quantity from private initiative.

It is futile to think of depending upon foreign sources for any considerable future supply of wood products. We must grow more timber at home or alter the entire plan of American life and industry.

A Few Truths as to Forestry Methods

It is helpful to state a few truths as to the methods of forestry:

Forestry is not a law compelling the planting of a new tree for every one cut.

Forestry is not a law limiting the cut to certain sizes and kinds of trees.

Forestry is not arbitrary control by any public body over the operations of private enterprise.

Forestry is not fire prevention—though this is everywhere necessary.

Forestry is the application of definite scientific principles to the growing and using of timber crops.

Forestry is and will be practiced by the private owner when he can see that it pays him to do so.

Forestry is and must be practiced by government upon public property in order to insure some supply of forest products for the people. Because of the long time investment and comparatively small return thereon, together with hazards of fire, insect, fungus and storm, a considerable area of publicly owned forests will always be needed although public ownership of the entire forest area of any country is neither necessary nor desirable.

The proportion of total forest area in public ownership of some form in the leading European countries in the practice of forestry is 35 per cent in France, 53 per cent in Germany and 24 per cent in Sweden. Private capital engages in the growing of timber and co-operates with the public authorities in so doing in those countries, because capital gets a fair return therefor. Private capital will do so elsewhere with a market for forest products and the same assurance of safety of return.

Any practical solution of the problem of continuous forest production must be based upon the principle of Federal leadership and co-operation with the States and timberland owners.

What the Ultimate Program Should Include

The ultimate program should include:

1. A survey of forest resources and land classification to determine:

   What timber we have
   How much we need
   How much can be grown

2. The determination for each forest region of the essential requirements for the maintenance of forest productivity.

3. Sufficient national appropriations to be expended in co-operation with State and other agencies to make such requirements effective.

4. Provision for extensive research into problems of timber growth and utilization.

5. Forest planting upon a large scale, by both Federal and State agencies.

6. The devising of better methods of forest taxation and their adoption by the States.

7. The continual building up of publicly administered forests through purchase, exchange, transfer from the public domain and

the several forms of public reservation until 40 per cent of the ultimate forest area of the United States is permanently devoted to timber growing or watershed protection under public control.

At present 20 per cent of the forest area of the United States is publicly owned, but the situation is badly unbalanced. From the Rocky Mountains west, 70 per cent is in public ownership and from the Rockies east but 3 per cent.

What National Program Should Include

The immediate national program should include:

1. An appropriation of not less than $1,000,000 yearly for co-operation with the States in fire prevention, the National Government to spend no more for this purpose in any State than the State itself spends therefor, including the expenditures of forest owners required by State law.

2. A definite authorization of yearly expenditure for the purchase of forest land upon the watersheds of navigable streams according to the recommendations of the National Forest Reservation Commission.

3. An appropriation of $1,000,000 yearly for forest research and investigation, including studies in forest taxation and forest insurance.

4. An initial appropriation of $100,000 yearly for forest planting in co-operation with the States and otherwise with provision for increases up to a total of $1,000,000 yearly within 10 years as planting facilities and forest protective measures are improved.

5. Authorization for determination by the Secretary of Agriculture of what lands, owned by the United States and not now embraced in National Forests or National Parks, are valuable chiefly for the production of timber or the protection of watersheds and provision for their ultimate inclusion within the National Forests or such other protection and administration as will promote their best use in the public interest.

These items represent the minimum of measures that are immediately practicable have the widest application and are not of controversial character.

None of these items can be rightly charged to the National Expense Account. They are investments in the future and permanent welfare of the country—an insurance upon one of our greatest and most necessary natural resources. Their permanent inclusion in the National Budget will be an act of constructive statesmanship which will be heartily supported by the people regardless of party affiliation.

A. P. & P. A. in Accord

Mr. Kellogg also read a letter from the American Newspaper Publishers' Association endorsing the bill and asking for its prompt enactment.

That the paper industry, as represented by the American Paper and Pulp Association is in hearty accord with the principles of the forestry bill was the statement made by Warren B. Bullock, on behalf of that Association. He presented this statement, signed by Henry W. Stokes, and Dr. Hugh P. Baker, president and secretary, respectively of the Association:

"The Paper industry is a wood-using industry. Its permanency in this country depends upon a continuous and adequate supply of pulpwood. Of the approximately 7,200,000 tons of paper produced in the United States in 1923 over 95 per cent was made wholly or in part from wood.

"The paper industry, appreciating the great necessity for a Federal Forest Policy which will provide for adequate forest protection, management and reforestation, urges favorable action by Congress upon the Clarke bill because—

"1—The United States needs a definite and constructive forest program. This bill provides for such a program.

"2—No state of the Union has an adequate forest fire prevention system. This bill provides for a co-operative development of effective state and federal forest fire organizations.

"3—The forests of the United States are being cut at least four times as rapidly as they are being replaced by natural growth or artificial reforestation. This bill would make possible commercial reforestation by the states, by the wood-using industries and by individuals.

"4—Excessive and confiscatory taxation of forest lands prevents the holding of forests or cut-over lands for successive growths of timber. This bill provides for a development of a rational system of forest taxation.

"5—The nation lacks adequate national forests to insure a perpetual supply of timber and other forest products. This bill provides for an extension of public forest ownership.

"While the Paper Industry in the United States is using only approximately 4 per cent of the annual cut of wood in the United States, yet as a wood-using industry, it is facing the immediate and serious problem of its very existence through the present lack of adequate federal and state forest policies.

"The Paper Industry of the United States approves the Clarke bill and urges very early action upon the bill by Congress."

Others appearing before the committee during the two days' hearing were: George D. Pratt, president of the American Forestry Association; Philip W. Wyres, secretary of the Society for Protection of New Hampshire Forests; A. C. Oliphant, secretary of the Federated American Engineering Societies; W. B. Greeley, Chief, United States Forests Service; Secretary of Agriculture Wallace; Wilson Compton, National Lumber Manufacturers Association and others.

Labor Contracts May Hold Over

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., March 24, 1924.—The renewal May 1 of labor contracts with paper companies throughout the country is liable to be impossible this spring, according to an expression here by Attorney T. A. Hendricks, who represents J. T. Carey in his action against the Brotherhood of Paper Makers, its officers and board of canvassers. The action is pending to restrain the defendants from ousting Mr. Carey as president and substituting Matthew H. Parker of Buena Vista, Virginia.

The evidence in the action was heard in this city by Justice E. N. Smith early in February, and the attorneys were given time in which to submit briefs. No briefs have been filed because the transcript of the minutes of the case has not been accomplished. The stenographer says he will be unable to reach this work before early in April. It will be well toward the first of May before the work can be completed. Then the Justice will have a regular term that will make it impossible for him to consider briefs before early in June.

Under the restraining orders there is no president of the Brotherhood to negotiate with the manufacturers on contract renewals. It is said here that the 1923 contracts will probably hold over.

Tarentum Paper Mills Sold

PITTSBURGH, Pa., March 24, 1924.—The Tarentum Paper Mill, one of the pioneer industries of the Allegheny valley, has been sold to a group of Tarentum industrial and business men.

The chief owners of the plant now are E. M. Love, president of the Tarentum Savings and Trust Company; John A. Bechtel of the Pittsburgh Plate Glass Company, Attorney Samuel M. Hazlett of Tarentum, Frank S. Love of Tarentum and R. F. Pitcairn of Tarentum.

The deal included the transfer of the stock from the Willock interests of Pittsburgh, which formerly controlled the plant, to the Tarentum men.

Southern Superintendents to Organize

NEW ORLEANS, La., March 24, 1924.—The first meeting of the Southern Division of the American Pulp and Paper Mill Superintendents' Association will be held here Friday, April 18. An interesting program is being prepared and it is expected, judging from present indications, that the meeting will be well attended by the pulp and paper mill men of this section.

APPLETON CONCERN IS NOW INSTALLING PAPER MACHINE

Riverside Fibre and Paper Co. Expects to Have New Acquisition Running in About Sixty Days—Consolidated Water Power and Paper Co. Makes Elaborate Rafting Preparations—Sawfly Threatening Pine Forests with Extermination—Northwestern Papermill Superintendents to Hold Convention in Marinette—Main Mill of John Strange Paper Co. Visited by Fire.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 25, 1924.—The paper machine built by the Beloit Iron Works, Beloit, Wis., for the new plant of the Riverside Fibre and Paper Company at Appleton has arrived here and is being set up. At least 60 days will be required to place it for operation. Erection of the paper machine was started before the completion of outside construction of the new plant.

The last concrete for the new building was poured last week on the roof of the stock building. It is believed the plant will be ready for operation by June 1. As soon as the new paper machine is set up and ready to operate the machine in the present plant of the Riverside company will be moved to the new building. The new machine will make a sheet 116 inches wide.

Three buildings are included in the new plant. The finishing room and the machine room each are two stories high and the stock room is five stories high. Pulp will be transported from the stock room to the paper machines by a gravity system. Two crews of electricians have started work in the plant installing switchboards and electrical controls.

The Ross system of heating, utilizing waste steam, will be employed in the new plant. The steam will be run into "economizers" near the roof of the building where it heats fresh air which will be forced into the structures.

The company's new filtering plant, which was built at quite a distance from the main part of the mill, is completed. It has a capacity of 3,500,000 gallons and is connected with the mill by a 16-inch pipe. The plant is 240 feet long by 30 feet wide.

Contracts were awarded last week by the company for construction of an office building across the street from the new plant. This building, two stories high, will cost about $15,000. It will be 32 feet long by 55 feet wide.

Making Rafting Preparations

Preparations are being made by the Consolidated Water Power and Paper Company, Wisconsin Rapids, to raft about 40,000 cords of pulpwood across Lake Superior during the summer. In addition about 3,000 tons of groundwood a month will be shipped by scows or freighters from the company's mill at Port Arthur during the navigable months.

Pulpwood rafter across the lake will be loaded on freight trains and hauled to the company's mills at Wisconsin Rapids, Biron and Wisconsin. The company is building a dock at Port Arthur from which the groundwood will be loaded on to scows and taken across the lake. That part of the winter's output of the Port Arthur mill required in the immediate future will be transported by rail.

Sawfly Doing Damage

Jackpine forests of Minnesota and Wisconsin are threatened with extermination by the pine sawfly which already has destroyed hundreds of acres of pine, according to S. A. Graham, forest entomologist of the University of Wisconsin. Jackpine is used extensively in the manufacture of kraft paper and the loss of this wood would be a serious handicap to the paper industry in the Middle West

Investigation has shown that two species of the sawfly are attacking jackpine in Minnesota. This situation is serious because studies of similar outbreads in foreign lands have shown that where destruction of pine was complete, two or more species of insects were involved in the tragedy.

Complaints in 1922 that caterpillars were damaging jackpine reached the University of Minnesota in 1922 but no action was taken until last year when it was found that pine in nine townships was affected. In several localities near Park Rapids, Minn., one-third of the jackpine has been killed.

It has since been discovered that a large area of pine in the upper St. Croix valley in Wisconsin, 50 miles east of the Minnesota line, is seriously infested. It is feared that the extensive region between the known infested areas in Wisconsin and in Minnesota may be seriously affected and the loss will be tremenduous.

Convention of Superintendents

Papermill superintendents of the Northwestern district will hold a convention in Marinette, Wis., on May 2 and 3. Announcement of convention dates has been sent to members of the association. The district includes the mills in the Fox and Wisconsin river valleys, the Peshtigo river valley and the northern peninsula of Michigan. About 50 superintendents are members of the association.

An excellent program is being worked out, including addresses and papers by a number of prominent leaders in the paper industry.

Hayton Co. Gets Contract

The Hayton Pump and Blower Company, Appleton, manufacturers of pumps in papermills, has been awarded the contract for furnishing machinery and equipment for a new sewer disposal plant at Syracuse, N. Y. Four pumps are included in the Appleton Company's bid of $18,516.

John Strange Co. Has Fire

The main mill of the John Strange Paper Company, Menasha, was threatened by fire which started in a pile of baled paper, probably from spontaneous combustion. The dense smoke made fire fighting extremely difficult and firemen were forced to wear gas masks to get to the flames. Considerable damage was caused by the vast amount of water dumped into the building.

To Take Pulp Making Course

Eighty-nine pulpmill operatives, managers, foremen and technical men from all over the United States have enrolled in the extension course in pulp making conducted by the United States Forest Products Laboratory in co-operation with the University of Wisconsin extension division. Dr. C. E. Curran of the pulp and paper section of the Forest Products laboratory has charge of the course.

Although 52 of the students are from Wisconsin, there are representatives from New York, Maine, Illinois, Mississippi, Minnesota, North Carolina, Michigan, Washington, Indiana, Pennsylvania, Maryland, Oregon, Tennessee and Mexico.

The course is the outgrowth of an effort made sometime ago by the Technical Association of the Pulp and Paper Industry and the Technical section of the Canadian Pulp and Paper Association to improve American Paper mill practice by education of mill operatives. To this end a fund was raised for the writing of a standard textbook on American mill practice. Hitherto the majority of textbooks available were based on European practice and problems. The new work is used as text in the correspondence course.

Frederick G. Crane Educational Fund

DALTON, Mass., March 25, 1924.—The selectmen of the town have received a gift of $5,000 for special educational work in the schools in memory of the late Frederick G. Crane. A letter accompanied the gift.

PHILADELPHIA HAS DECIDED GAIN IN FINE PAPER BUYING

Coarse Papers Almost Duplicate Fine Paper Gain and Conditions are Most Encouraging—Report Made on Pulp Supply of State—Slight Decline in Employment Reported but Wages Show Increase—York Haven Paper Co. Deed of Transfer Filed—Dill & Collins Secure New Executive Offices in Herrin Building—Penn Card and Paper Co. Takes Up Lines of American Writing.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., March 24, 1924.—In the week's experience of the fine paper distributors the outstanding development was that improvement in buying, not strikingly large in any one case, extended over the entire line in a more comprehensive way than at any time this year. In some instances because of peculiar conditions the gain was very decided. To illustrate the Paper House of Pennsylvania was able to report a percentage of gain for March business over the preceding month, larger than any experienced in the last 15 months. The gain achieved was the result of a more cheerful attitude on the part of printers, reflecting better conditions in this industry.

The coarse paper market almost paralleled the fine. Differing, however, in the fact that one grade, Kraft, ran much ahead of all others in this division. Influence of the foreign product seemingly was over-estimated by some because, while offerings in it still were numerous and at prices at least superficially attractive, most of the trade reported that the foreign made goods did not offer real competition and that preference among the large buyers generally was for American-made lines.

The awakening activity of the distribution market did not prevail in the paper stock warehouses which maintained the same dullness which has marked this division of the industry ever since the new year. Mill inquiries are practically nil amongst the local manufacturers and out of town business is almost as quiet.

Penna. State Pulp Supply

The Pennsylvania State department of Forests and Waters is completing the details of a survey of Pennsylvania forest lands with special reference to the pulpwood supply, but conclusions already are available. It estimates that to supply all the mills with pulpwood for paper making purposes involves the product of 500,000 acres of well managed lands. Last year 70 per cent of the wood converted in 12 pulp mills of the State was imported from Canada or other points beyond the bounds of the State. But the consumption last year of 446,662 cords of wood used in the Pennsylvania mills was an increase of 39,630 cords over the 1922 figures. Of the 12 mills, four imported all their requirements and eight secured less than 30 per cent from within the Keystone State boundaries. Of these only two imported less than 25 per cent. Of the total consumption 27 per cent was spruce, and the remainder was made up of poplar, jack pine, birch, beech, maple, gum and hemlock. Invested in the pulp industry is over $50,000,000 and employment is given 7,000 persons drawing $12,000,000 annually. The report says that the Pennsylvania Mills realize they cannot indefinitely draw on Canada and the South and that one of them at least has under consideration acquisition of a large tract in the central part of the State for the growing of its own trees.

Federal Reserve Reports Employment

Employment and wage conditions in Pennsylvania and New Jersey during February are treated in a special report made during the week by the Philadelphia or Third Federal Reserve Bank. Returns from 13 plants engaged in the paper and pulp products industry show a decline of employment of 2.5 per cent but with an increase of total wages of 7.9 per cent and an increase in average wages of 10.7 per cent. In New Jersey conditions as reported by 10 plants were an employment loss of 3 per cent, a total wage gain of 0.4 per cent and an average wage gain of 3.6 per cent.

York Haven Mills Deed Recorded

During the week there was entered for record at York, Pa., a deed transferring the property of the York Haven Paper Company, at York Haven to the Continental Paper and Bag Mills Corporation. The instrument was dated February 29. There was also entered for record a copy of a first refunding mortgage and deed of trust by the Continental Paper and Bag Mills Corporation to the Chase National Bank of New York, covering a bond issue of $12,000,000. Explanation was made here by Miss Martha H. Young, newly elected secretary of the York Haven Paper Company, that the proceedings at York were necessitated by issuance of bonds by the reorganized Continental Paper and Bag Mills Corporation for business expansion. Miss Young succeeded Waldo R. Smith, former secretary who resigned from the company to take up his residence in California. She has served for many years as secretary to President Henry W. Stokes of the York Haven Company and President of the National Pulp and Paper Association. Louis P. Condon for the past two years sales manager for the Philadelphia district of the Continental Paper and Bag Mills Corporation and located in the Bourse Building, has removed his offices to the Land Title Building, headquarters of the York Haven Paper Company for which he had been sales manager.

Dill & Collins Take New Offices

Announcement was made during the week that on July 1, executive offices for Dill and Collins will be opened in the newly completed Herrin Building, 12th above Arch street and, at this time, present headquarters at 6th and Cherry streets will be taken over by Riegel & Co., recently appointed distributors for the Philadelphia district. While Dill and Collins have retired from the direct distribution, having established distributing connections with jobbers in this city, Washington, Baltimore, New York, Boston and Rochester, present district offices will be maintained and be extended. Such offices now exist in Pittsburgh, Cleveland, Detroit, Cincinnati and Chicago. Ralph Collins, for the last five years, sales manager of the W. C. Hamilton and Sons Company Mills, at Miquon, near Philadelphia, has resigned to accept the position of New York sales manager for Dill and Collins. His headquarters will be at 1170 Broadway, in the newly acquired Metropolitan headquarters which were taken to replace the previous ones in the warehouse at 419 Lafayette street, and which have been discontinued.

Penn Card & Paper Co. Expansion

Acquisition of over 3,000,000 pieces of the discarded lines of the American Writing Paper Company including cards, paper and envelopes, and mourning and announcement stocks adapted to the needs of printers, engravers, and manufacturing stationers, was announced by Myer Magill, owner of the Penn Card and Paper Company. To accommodate these stocks and the expanding business of paper specialties in large quantity odd lots in which he has been engaged for over two decades, he has taken over an additional floor in his own warehouse previously sublet and now giving him three floors.

News Notes of Interest

Harvey E. Platt of the J. L. Smythe Company and nationally known as treasurer of the National Paper Trade Association sailed last week on a pleasure and business trip of several months' duration, to Europe.

Carl Lincoln formerly with the American Writing Paper Company and the Holden Paper Company of Newburg, Conn., has been appointed sales manager of the W. C. Hamilton & Sons Mills, River Road and Manor street, Miquon, near Philadelphia, taking the position made vacant by the resignation of Ralph Collins.

There has been added to the sales organization of Raymond &

McNutt, 825 Walnut street, dealers in fine papers and announcements, Edward N. Crosman, formerly of the Whiting Paper Company sales forces. Mr. Crosman will cover the city trade, featuring the engraving and printing industries. A new 50-inch Seybold cutter has been added to the cutting department for speedier service.

The newly constructed garage of Wilder Brothers in the building at 12th and Brown streets, facing on the Brown street side, has been completed and is now being used for the delivery service. There is enough space in the garage to accommodate 20 trucks.

A line of Potomac Cover Papers made by the District of Columbia Paper Company has been added to the stock of the Wilcox-Walter-Furlong Paper Company and will be carried in white and nine colors and in 60 and 80 lbs. and double thick.

There recently was disposed of by auction office furniture and effects of Auer and Twitchell Company which recently became financially embarrassed and thereupon closed its Philadelphia office headquarters.

Alfred N. Watts, dealer in paper specialties, is back at his desk, having recovered from a recent severe attack of pneumonia.

Theodore Johnson of the Welsh Paper Company and its subsidiary, The Paper Service Company, 19 S. 7th street, has just returned after an extensive trip through the western states. Adolph Wilkins who has been covering the southern states and middle west for the past month is again at headquarters.

The Philadelphia Card and Paper Company, of which Philip Yarish and Julius Schenck are proprietors, has just added the James River Bonds made by the Richmond Paper Company, of Richmond, Va., to its line of flat papers.

Quick work on the part of volunteers in the fire fighting forces of the Barrett Manufacturing Company, roofing paper department, Tacony and Lewis streets, prevented the explosion of a tank containing 5,000 gallons of naphtha, located in the yard, which became ignited by a spark from a shifting on the siding of the plant.

Roger Taft of the Hammermill Paper Company, of Erie, Pa., visited the local trade during the week.

Carthage Foreclosure Opposed

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., March 24, 1924.—Sale of the property of the Carthage Sulphite Pulp and Paper Company will not be permitted before April 1, at which time Judge Frank Cooper will hear argument on the question of foreclosure proceedings on the mortgage. The company is now in the hands of a receiver, who proposes to sell the property and not return the plant to operations. The case was brought before Judge Cooper in United States District Court at Albany last Saturday.

The motion before the court was on the subject of foreclosure of the mortgage. R. F. Hammond and R. F. Hammond, Inc., the largest creditors of the Carthage company, represented by O'Connor & O'Connor of Waterford, opposed the foreclosure under the plan to include $100,000 worth of pulp in the procedure. The court postponed the case to April 1 and urged that the interested arties consult with a view to reaching some agreement under which the plant may be returned to production of paper.

Francis E. Cullen, of this city, attorney for Charles E. Norris, the receiver, said that the property should be sold as it could not be operated at a profit. He placed the loss last year at approximately $150,000, saying that efforts to operate showed a loss of from $5.25 to $7.91 a ton on the product with a daily capacity of 45 tons.

John H. Jackson, representing the company, expressed optimism on the question of operating the plant. He suggested that $25,000 would enable the company to satisfy the creditors and enable the company to start work again. It is believed that the tangle may eventually be straightened out, the mortgage of $671,860 refunded in some way satisfactory to the creditors.

Arrangements for Superintendents' Meeting

A program discussing subjects ranging from apprenticeship in the paper mill, and vocational education, to the most highly technical problems confronting the pulp and paper mill superintendents has been completed for the annual convention of the American Pulp and Paper Mill Superintendents' Association in Dayton, Ohio, in May, under the direction of H. W. Server of The Miami Paper Company, West Carrollton, Ohio, general chairman.

The convention is to open at 9 A. M., Thursday, May 22, at the Miami Hotel. President Nelson R. Davis, superintendent of the S. D. Warren Company, Cumberland Falls, Me., will preside and will deliver the opening address. The address of welcome will be delivered by Mayor Frank B. Hale of Dayton and will be responded to by B. T. McBain, of the Nekoosa, Edwards Paper Company, Port Edwards, Wis. George H. Mead will be toastmaster of the annual banquet.

The general business session will be held on Friday morning in Dayton, followed by luncheon at the Manchester hotel in Middletown, Ohio. The divisional meetings will be held in the afternoon at various places in Middletown. Friday evening at the banquet, which will be held at The Dayton Country Club, "Dusty" Miller, a country editor who is fast becoming famous as an after dinner speaker, will talk. Charles F. Kettering, president of the General Motors Research Corporation, may have a place on the banquet program, as also will Martin Collins of the Graham Paper Company, St. Louis.

Saturday will be given over to visits to the various mills and plants of the allied industries of the Miami Valley, many of whom are making special entertainment features for all the visitors.

The following is a partial list of the papers that have been prepared for the convention and will be given during the sessions on Thursday and Friday.

"Apprenticeship in the Paper Industries," George P. Hambrecht, United States Director of Vocational Education.

"Build and Maintenance of an Organization," Robert B. Wolf, R. B. Wolf Company, New York.

"Employment Problems," Frances S. Pope, Mead Pulp & Paper Co.

"The Beater of Today," Charles Shartle, The Shartle Brothers Machine Company.

"Drying of Paper," E. P. Gleason, C. E., Nekoosa-Edwards Paper Company.

"The Development of Recording Devices as Applied to the Art of Paper Making," M. A. Goetz, General Electric Company.

"The Use and Abuse of Paper Making Felts in Paper Mills," M. C. Burrell, Orr Felt and Blanket Company.

"Seam and Power in Pulp and Paper Mills," H. S. Taylor, President Technical Association of the Pulp and Paper Industry.

"Manufacture and Use of Bleached Ground Pulp," Lyman Beeman, Consolidated Waterpower and Paper Company.

"Vocational Education," Harry P. Carruth, General Manager, Mead Pulp and Paper Company.

"Paper Making Fibres," B. S. Summers, Port Huron.

"Beating of Kraft," A. W. Bronk, Deerfield Valley Paper Company.

"Tinting of White Paper," John R. Roberts, DuPont Company.

M. H. Parker Restrained from Presiding

[FROM OUR REGULAR CORRESPONDENT.]

BUFFALO, N. Y., March 24, 1924.—M. H. Parker, president of the International Brotherhood of Paper-makers, was restrained by a court order from presiding at the opening session of the convention at the Hotel Statler last week. The order was obtained by J. T. Carey of Albany, president of the brotherhood for eighteen years prior to an election of last November. Alleged irregularities in the election were said by Mr. Carey to be the basis for the order.

F. P. Barry, first vice-president, presided.

ANOTHER PROPOSED MERGER TALKED ABOUT IN MONTREAL

Spanish River Pulp and Paper Mills and Abitibi Power and Paper Co. Linked Together in Rumor—Abitibi Co. to Hold Its Annual Meeting on April 7—Kilgour Bros. Start Up New Paper Bag Factory at Windsor Mills—Brompton Dividend Discussion Proves Interesting Feature of Meeting—Farewell Luncheon Given in Honor of J. N. Stephenson on Eve of Departure to England.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., March 25, 1924.—Another large merger plan is now under discussion here, namely the merger of the Spanish River Pulp and Paper Mills and Abitibi Power and Paper Company. The negotiations are credited to Alexander Smith, who is president of Abitibi. Mr. Smith, who is also a member of Peabody, Houghtelling & Co., of Chicago, the financial agents of the company, has been interested in Abitibi from the outset and, together with the estate of the late F. H. Anson, is a holder of over 50 per cent of the common. The general outline of the proposal is stated to be that a new company would be formed to take over both existing companies and that it should have a total authorized bond issue of $25,000,000 and a capital of 700,000 shares of no par value, or equal to $70,000,000 on the old basis of $100 par value. The preliminary basis proposed did not appeal to Spanish River shareholders, it is said, in view of the fact that Abitibi had been split 5 for 1, and Spanish stock had not been diluted. Present negotiations are stated to be along the following basis: Spanish River preferred, 2¼ to 2½ shares of the common stock of the new company for each share now held; Spanish River common, two shares of new common stock for every one now held; and Abitibi Pulp and Paper Company, one share in the new company for every Abitibi share now held.

On the basis of the earnings of the companies over the past few years, and allowing for the economies that would be effected, it is thought that current earnings would run at the rate of 10 per cent on the new common stock, or $10 a share of no par value, and the company would be in a position at the outset to pay at the rate of $5 per share, or equivalent to 5 per cent. The banking interests are said not to be altogether in favor of such a deal being carried through, because they are doubtful whether the stock markets in Canada are ready yet for a $70,000,000 industrial concern. It is thought, however, that if the merger were effected this situation would be remedied to a very considerable extent by the fact that a very large block of the securities would be taken to London and placed with a very strong syndicate there. It is believed that very large economies might be effected and in certain departments production could be gradually increased so that a much larger earning basis would be realized.

Abitibi Annual Meeting

The annual general meeting of Abitibi Power and Paper Company, Limited, will be held at the Canada Cement Building, Montreal, on Monday, April 7, at noon. Immediately after the annual meeting a special general meeting will be held for the purpose of considering the passing of a by-law whereby the number of directors will be increased from nine to ten.

New Paper Bag Factory

A new paper bag factory of Kilgour Brothers has started operations at Windsor Mills, Quebec. This branch of the business was formerly operated in Toronto.

Brompton Dividend Discussion

One of the strongest points in favor of the position taken by the directors of the Brompton Pulp and Paper Company at the annual meeting in Montreal this past week was brought out as the result of a question of a shareholder about the resumption of dividends on the common stock following the stronger position made in the recently published annual report. It was that 51 per cent of the shares were owned around the board room table in addition to between 25 and 30 per cent of the bonds. Shareholders could thus feel assured that it would be to the interests of the directors to start a dividend at the earliest possible time owing to their large holdings but they were determined not to do so until the company was assured that its strong liquid position would not be disturbed. At a special general meeting held immediately after the regular annual meeting, the directors were authorized to proceed with the acquisition of additional timber limits.

These comprise 45,000 acres, partly in Quebec and partly in Maine, formerly held by the Howard estate, and are conservatively estimated to contain 500,000 cords of pulpwood and 65,000,000 feet of pine lumber. Payment will be made by an issue of $850,000 of 6 per cent 15-year bonds of a subsidiary company guaranteed by Brompton Company, and the latter will pay for the lumber on a definite stumpage basis as cut. Payment to the Howard estate will consist of $350,000 of the bonds, the balance being taken up privately at around 90. Mr. McCrea regarded the deal as the most advantageous which the company has ever undertaken, providing the company with an abundant supply of extremely cheap wood close to the mills. Approximately 8,000,000 feet will be cut this year. The stumpage clause provides for a price of $2.50 per cord. Mr. McCrea explained that the acquisition of the Dominion Lime Company will assure Brompton a steady supply of lime, practically free of charge, as the sale of part of the output will pay for operating and other expenses.

Exhibit at Empire Exhibition

A farewell luncheon was given during the week by the Montreal Paper Club at the Mount Royal Hotel to J. N. Stephenson, editor of the *Canadian Pulp and Paper Magazine*, who has been appointed by the Canadian Pulp and Paper Association to organize their exhibit at the British Empire Exhibition at Wembley, and to represent the industry there during the whole six months of the exhibition. In addition to cordial good wishes, Mr. Stephenson was presented with a case of pipes from the Paper Club, the presentation being made by E. T. Reynolds. There was a good attendance at the luncheon, the chair being taken by Edward Beck, secretary and manager of the Canadian Pulp and Paper Association. An illustrated address was given by Mr. Stephenson, in which he described the extent of and opportunities at the British Empire Exhibition, and detailed the arrangements being made by the Association and its members. He said that outside the various Canadian government exhibits, that of the pulp and paper men would be by far the largest and most elaborately designed of any in the Canadian building. The association's exhibit was being participated in by 29 of the largest producers and converters in Canada, with exhibits showing the whole course of Canadian spruce from the forest to the home, as printed and circulated newspapers. These exhibits, he said, had already arrived in England or were on their way, and he intended leaving in a few days to look after their unpacking and proper placing at the Wembley grounds.

The main feature of this exhibit would be a complete model ground wood pulp mill, with forest background, a running river, with a waterfall, a boom of logs, with water conveying the logs and sticks to the mill, and townsite, railroad sidings and wharfs. The whole model would be an exact replica of a typical Canadian pulp mill, and was being constructed by the Forest Products Laboratories staff. Individual exhibits will consist of a number of booths, arranged for by the leading Canadian pulp and paper companies. Some of these are of particularly handsome design, illustrating the great number of uses to which wood pulp can be put, from news print to artificial silk, and most artistic colored crepe papers, and even to rugs.

FEW CHANGES REPORTED IN CHICAGO TRADE CONDITIONS

Demand for Bonds and Ledgers Increases and Cover Papers Develop Unusual Tendency—Linton & Co. Made Exclusive Sales Agents for Northwest Paper Company's New Product—Profitless Year Experienced by Eddy Paper Corporation—Champion Coated Paper Co. Issues First Broadside of Series—Central States Association to Hold Annual Meeting at French Lick, Ind.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., March 22, 1924.—With a few exceptions, the Chicago paper market remains virtually as it was reported a week ago. These changes do not affect the upper grades, but coarse lines. The demand for bonds and ledgers increased slightly over the previous week and prices are said to be holding firm. Mills are running to capacity with orders booked ahead for several weeks. Book papers continue to go at the same steady pace with no change in prices for the present. There is a rumor that paper bags will be increased in price ten per cent within the next week.

Butchers' manila is in better demand and western markets firmed up perceptibly during the past week, selling now at 4½ cents in carload lots.

Cover papers stand out at this season of the year in a rather peculiar way, when compared with other lines. March business is said to be mostly small quite contrary to expectations. Usually it turns up with a heavy volume of sales but large catalogue work ordinarily placed in March has not yet materialized.

F. D. Wilson Sees Better Tone

Encouraging conditions in the board division of the paper industry were pictured by F. D. Wilson, salesmanager of the Chicago district for the Robert Gair Company of New York, and sales manager for both the Alton Box Board and Paper Company, and the Lafayette Box Board and Paper Company, in an interview with a representative of THE PAPER TRADE JOURNAL. Mr. Wilson said:

"I think that the market is quiet now on boards and containers due to the fact that a depression in the industry has prevailed for several months. The result is that stocks in the hands of consumers are low and orders being placed are for rush shipments.

Spring trade has not opened up yet in a real way. It seems to me, however, that business is on a sound basis and the board market will be rather firm."

Very little change was reported in the waste paper markets. Mixed papers turned up weaker while newspapers strengthened somewhat, running up about ten cents a hundred pounds. Other grades remain unchanged.

Linton & Co. Distributes Northwest Products

Announcement has just been made by J. M. Guest, of Linton & Co., Chicago, that the long-fibre unit of the new plant of the Northwest Paper Company, at Cloquet, Minn., is now practically completed and commercial operations will soon start on the manufacture of high-grade wrappings. The efforts of the company have been directed toward a wrapping paper superior in color, finish and strength.

Linton & Co., with branch offices in New York City, St. Paul, Minn., St. Louis and Kansas City, Mo., have been appointed exclusive sales representatives for this grade of paper, which will be placed on the market during April.

Eddy Paper Corp. Has Profitless Year

The profitless year experienced by the Eddy Paper Corporation last year was attributed to losses on inventories, according to George M. Seaman, president of the company. The annual report showed a deficit of $254,021, after all deductions, including depreciation, taxes and interest.

At the end of 1923, inventories were listed at $993,522, which gave the company a loss of $122,932 because of the decline in the value of the products listed. This amount of inventory is virtually the same as shown in the balance sheet as of September 30, 1922.

Champion Issues First Broadside of Series

The first huge broadside of a series to be sent out by the Champion Coated Paper Company went out last week from headquarters in Hamilton, Ohio. It is 22 inches wide by 32 inches deep printed in red and black. Across the top is a huge reproduction of the entire mill at Hamilton as it was taken from an airplane last fall. Under a large caption are six brief paragraphs which announce the beginning of this series of folders which will be devoted not to the company's products but to its production and operation of the present.

National Paper Co. Incorporates

The National Paper Company, 935 N. Western avenue, Chicago, has been incorporated as wholesale merchants in wrappings, twines and grocers' sundries. The firm has been in existence five years, having its warehouse space at the present location. The incorporators are John D. Hardlicka, who is also president, and Joseph T. Moudry.

Boxboard Association Provides Statistics

The Boxboard Association, which was an outgrowth of the old Paper Industries Exchange here, is now rated as a statistical organization solely. Its purpose is to gather and disseminate to the public production statistics from its members. No figures are given to individuals until they are given to the public by means of the government reports. An arrangement has been effected with the Bureau of Census at Washington, to publish the statistics provided by the association in its advance bulletin and also in its monthly booklet. This begins in April.

The Boxboard Association now comprises 41 members which is 80 per cent of those eligible for membership. This number also controls a large percentage of the total tonnage produced in the country.

Central States Body Holds Annual

Preparations are going forward for the annual convention of the Central States Paper Trade Association, which will take place at French Lick Springs Hotel, French Lick, Ind., May 23-25, according to announcement by Charters K. Higgins.

Annual Meeting on April 29

The annual meeting of the Middle States Wrapping Paper Association is scheduled for Chicago, April 29. The exact place has not been decided. The Chicago members, namely, the Swartz Paper Company, Steindler-Inlander Paper Company, A. G. Stewart Paper Company, and the Messinger Paper Company, constitute the entertainment committee.

Activities of the Paper Trade

Fred C. White, vice-president of the James White Paper Company, is spending a month in St. Petersburg, Fla.

E. E. Lloyd, president of the E. E. Lloyd Paper Company, is back from a business trip to Detroit, Mich., which took up several days, and where he had the pleasure of attending a gathering of purchasing agents of that territory.

Tileston & Hollingsworth Co. Move

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., March 24, 1924.—The Tileston & Hollingsworth Company, for over thirty years located at 49 Federal street, Boston, Mass., has moved its offices to larger quarters, now occupying the sixth floor of the building at 211 Congress street. The Tileston & Hollingsworth Company is one of the oldest paper manufacturing concerns on this continent, having been in business over 100 years.

BRIGHTER CONDITIONS IN TORONTO PAPER INDUSTRY

Mills Running to Greater Capacity Than a Year Ago at This Time and March Business a Trifle Ahead of March, 1923—Provincial Paper Mills to Add Another Book Machine to Port Arthur Plant—Power Contract Entered Into by Great Lakes Paper Co.—Some Record Pulpwood Hauls Being Made at Kashabowie—New Power Line from Bare Point Sub-station Almost Ready.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, March 24, 1924.—Business in the paper line continues fair and with the improvement in weather conditions the outlook has brightened somewhat. Most mills are running to greater capacity than they were a year ago at this time, and jobbers report that trade on the whole is slightly ahead of what it was last March. Manufacturing stationers, post card producers and other makers of specialty lines are getting ready for a big Easter demand. Lately there have been several contracts placed with book and writing mills for catalogue and school book supplies which will keep the plants well employed for a few weeks. Most mills are running from a seventy-five to eighty per cent basis. The printing trade has picked up in the smaller offices, although the larger establishments report there is not much increase as yet. The pulp situation continues rather quiet, and prices show no stiffness. Toilet and tissue paper mills are running pretty full and news print plants are busy and shipping steadily. The rag and paper stock business is very good and, with the advent of spring, collections have improved.

Will Add Second Book Machine at Port Arthur

The annual meeting of the Provincial Paper Mills, Limited, was held in Toronto during the past week. Trading profits for the year amounted to $493,333 as compared with $729,261 in the previous period. Sundry revenue of $9,990 and the balance forward of $833,468 made the sum of $1,336,791 available for distribution. Interest charges amounted to $92,689, an increase from $55,787. The construction of the new book mill at Port Arthur was financed by the sale of additional bonds, and the increase in interest charges is accounted for in part by this. Depreciation allowance of $230,000 showed an increase of $80,000. The sum of $20,000 was reserved for contingencies and income tax payable 1924; $119,000 paid in preferred dividends and $210,000 in common dividends. The balance at the credit of profit and loss stands at $665,151, a reduction from $833,468.

I. H. Weldon, president of the company, explained the reduction in profits for the past year by saying that, during the first six months of 1923, the company completed the construction and put in operation the new book mill at Port Arthur, and, as is usual in starting a new mill, it was operated at a loss for several months. Profits at the other mills of the company were also low during the same period, due chiefly to manufacturing costs. In the later part of 1923, the Port Arthur mill began to return a profit, and the earnings of the other mills showed an improvement, with the result that fully three-quarters of the profits shown for the year were made during the last six months of 1923. Mr. Weldon added that he did not anticipate much change in the market for paper during the current year, but believed that manufacturing conditions would be somewhat better. In substantiation of this, he stated that the profits for the first two months of 1924 are nearly equal to those of the first six months in 1923.

The matter of installing a second machine at Port Arthur was agreed upon. The building, fire equipment, water supply, etc., are complete for a two-machine mill, and to double the capacity of the plant by installing a second machine will only necessitate an expenditure of approximately half of what has already been spent. Just when the order will be placed for a second unit will be decided by the directors. The new machine will be 156 inches wide, which is ten inches wider than the present one, and the speed will be about seven hundred feet a minute.

I. H. Weldon was re-elected president for the coming year; T. A. Weldon, vice-president; S. F. Duncan, treasurer, and W. S. Barber, secretary. All the old directors were re-appointed, with the exception that R. S. Waldie of Toronto, who was formerly president of the Toronto Paper Manufacturing Company, was added to the board, filling the vacancy caused by the death of C. A. Peck, of Kalamazoo, Mich.

Power Contract for Great Lakes Co.

In the Ontario Legislature during the past week, Premier Ferguson said that a contract had been entered into with the Great Lakes Paper Company, Port Arthur, Ont., to supply that concern with power at $21 and that a new agreement had been signed. The late provincial government, under the leadership of Hon. E. C. Drury, had made a contract with the company at $18. Premier Ferguson criticised severely the action of the former administration, saying that if such a contract had been accepted, it would have cost the Province of Ontario, for the term that it was to run, between four and five million dollars. Mr. Ferguson intimated that E. W. Backus, of Fort Frances, Ont., had acquired an interest in the Great Lakes Company, but that, during the power negotiations, he had kept in the background. Mr. Ferguson also asserted that Sir Adam Beck, head of the Hydro Power Commission, had held out for a minimum price of $21 per horse power for the Great Lakes Company, declaring that a cheaper rate could not be given without making up the deficit by charging higher rates to other customers of the system. He added that the contract had now been revised to $21 per horse power, which, in the thirty-two years that it has to run, will mean upwards of $4,500,000 to the province of Ontario, and is a rate comparable to the Port Arthur and Nipigon prices.

Power for New Pulp Mill

By the middle of next month the power line from Bare Point sub-station to the plant of the Great Lakes Paper Company at Fort William, will be ready for the transmission of electricity. All the steel towers are up and the wires strung. The new pulp plant of the company is nearing completion and splendid progress has been made on the construction work.

Notes and Jottings of the Industry

A. F. Rutter, vice-president of Warwick Brothers & Rutter, manufacturing stationers, Toronto, who recently underwent an operation, is in a serious condition.

C. W. Graham, head of Buntin, Gillies Company, wholesale paper dealers, Hamilton, and former president of the Canadian Paper Trade Association, is enjoying a holiday in Florida.

William Robson, representing Andrew Whyte & Sons, Edinburgh, Scotland, was in Toronto last week calling upon his many friends in the paper trade.

Thomas J. Boddy, late with Buntin, Reid Company, Toronto, has joined the sales staff of the Allen Paper Company, succeeding C. W. Price, who died recently.

S. B. Munroe and A. B. Connable, of Kalamazoo, Mich., were in Toronto last week attending the annual meeting of the Provincial Paper Mills of which they are directors.

Edward Beck, of Montreal, secretary of the Canadian Pulp and Paper Association, was in Toronto lately calling on the industry.

It is expected that the break-up this spring will be unusually favorable for the floating of pulpwood to the various mills. All the wood has been brought out to the river banks during the past few weeks, and the cut in most sections has been unusually large. The big mills in Northern Ontario have ample supply for the coming year.

DORR

The Dorr Save-all

A machine developed especially by The Dorr Company, Engineers, for the recovery of stock from white water.

Dorr Engineers have specialized for years in continuous settling and sedimentation methods on many widely differing materials, such as sugar, rubber, metallic ores, and sewage.

The Dorr Save-all is the result of this experience and a large amount of research work under actual paper mill conditions. It provides a simple efficient means of recovering practically all the waste stock at a very low cost.

One Dorr Save-all is recovering 97% of the stock from 215,000 gallons of white water per day, requires no attention and but ½ H.P.

Booth 33 *at*
The Paper Show

The Dorr Company

Engineers

247 Park Avenue, New York

Denver RESEARCH TESTS DESIGN London EQUIPMENT

BOSTON PAPER ASSOCIATION HOLDS ITS ANNUAL DINNER

Banquet Is Largely Attended and Is Big Success in Every Respect—Governor Channing Cox Speaks on Good Government—Prof. Bullock of Harvard University Addresses Gathering on the Business Outlook—W. B. Stevenson of the A. Storrs & Bement Co. Is Elected Head of the Association for the Ensuing Year—List of Those Who Attended the Banquet.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 24, 1924.—The Algonquin Club, as for many years past, was again the scene of the annual meeting and banquet of the Boston Paper Trade Association Thursday evening. The association holds an enviable reputation among trade associations of this country, not only on account of its years of existence but because of the fact that its annual meetings have been honored with the presence of men prominent in the public life of the country. Presidents of the United States, United States senators, governors and state officials have been present at these annual occasions during its nearly forty years of existence.

W. B. STEVENSON

Thursday Governor Cox Speaks

The meeting on Thursday evening last had as its principal guest Hon. Channing H. Cox, Governor of Massachusetts, who because of his known record for clean government, undoubtedly was the magnet which attracted a record attendance, many of whom possibly expecting his talk would have to do with the present doings at Washington. In this they were disappointed, as he confined his remarks to urging a greater respect for laws, the exercising of the right to vote and the supporting of progressive movements which business men would consider of value to affairs of government. He referred to the paper industry as being the largest in the state and its great value to New England, also referring to the high personnel of those identified with the industry, many of whom from this section became highly honored public men.

Prof. Bullock on the Outlook

Professor Charles J. Bullock, of the Business Administration School of Harvard University, spoke on the business outlook which he stated could only be obtained from a review of the past. Doubt and uncertainty of the past five years he attributed to the failure of the expected to happen at the close of the war. He said we were undergoing a period of inflation similar to those periods which have followed every war in the world's history. He believed the world today was surfeited with statistical information, and no sane individual would attempt to prophesy what would happen to business within the next twelvemonth, though he believed conditions pointed to a good business year. He recalled the boom of the early months of 1923 and the sudden decline which followed, in spite of which reports of earnings by various concerns for 1923 show them to be larger than they were in 1922, and in many instances even greater than 1919.

Mr. McQuillen Remembered

As soon as the guests and members had been seated, Col. Charles S. Proctor arose to remark on his visit that day to the home of "Bill" McQuillen, who for the first time in over thirty years was, through an unfortunate accident, compelled to be absent from an annual meeting. On his motion a message of sympathy, along with a floral remembrance, was dispatched to Mr. McQuillen's home so as to have them reach him while the meeting was in session.

During the business session a silent toast, while taps were sounded, was drunk to the memories of the members who had passed away during the past year.

Election of Officers

The following were elected officers for the ensuing year: President, W. B. Stevenson, of A. Storrs & Bement Company; first vice-president, Norman Harrower, of Linton Brothers; second vice-president, Joseph D. Snell, of Von Olkner-Snell Paper Company; treasurer, Thomas H. Casey, of Casey-Bigley Company; secretary, F. B. Tracy, of Fort Hill Paper Company; and auditor, C. H. Wood, of Edwin Butterworth Company.

Among Those Present

The honorary guests included Hon. Channing Cox, Major Walter M. Pratt, of the Governor's staff; Frank M. Power, president of the National Paper Trade Association; Col. J. P. Jordan, a charter member of the Boston Association and its first vice-president, and Professor Charles J. Bullock. Others present included:

George C. Andrew, Monadnock Paper Mills; John A. Andrew, Stone & Andrew.

S. W. Bartlett, Baird & Bartlett; W. J. Bigley and Wm. L. Bigley, Casey-Bigley Company; W. W. Binford, Andrews Paper Company; Floyd H. Blackman and John F. Blackman, D. F. Munroe & Co.; Edgar S. Bliss, Worthy Paper Company; Thomas G. Bradlee, Stone & Andrew; D. K. Brown, Strathmore Paper Company; Prof. Charles J. Bullock, Arthur M. Burr, Matthew O. Byrne, Whitney Brothers; C. H. Barr, Monadnock Paper Mills.

George J. Caldwell, American Writing Paper Company; R. B. Case, Hollingsworth & Whitney Company; Herbert J. Casey and J. Harry Casey, Casey-Bigley Company; Paul D. Caskey, Advance Bag and Paper Company; Frank A. Cate, Andrews Paper Company; Asaph Churchill, S. B. Copeland, Eastern Manufacturing Company; Wendell H. Cowles, Dill & Collins Company; Governor Cox, E. L. Cummings and F. B. Cummings, A. Storrs & Bement Company.

F. T. Dolbeare, Great Northern Paper Company.

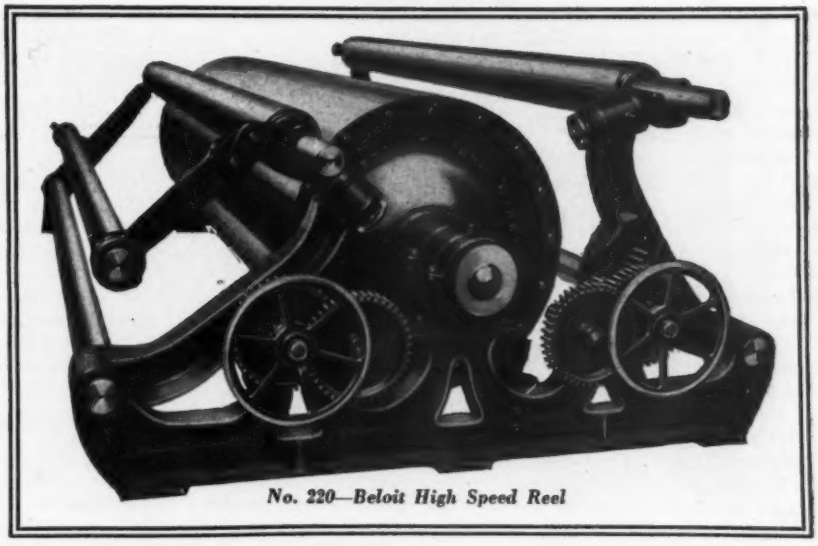
G. E. Emerson, Irving N. Esleeck, Esleeck Manufacturing Company.

Herbert E. Fales, Hollingsworth & Whitney Company; Arthur F. Fay, Parker-Young Company; Charles W. Fields, Baird & Bartlett; Paul S. Fiske, Parker-Young Company; W. H. Furbish, Max Frank, John Carter & Co.; Randolph Frothingham.

G. H. Gleason, C. F. Guild, Liberty Paper Company, H. J. Guild, Eastern Manufacturing Company.

(*Continued on page* 34)

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS



No. 220—Beloit High Speed Reel

Insure Yourself Against Loss of Paper, Accidents, Inefficiency

THE BELOIT UNIFORM SPEED REEL effects a saving of paper every time you change reel drums. It displaces the old obsolete method, and insures steady, reliable performance plus absolute assurance of economy of operation. Furthermore, it entirely eliminates the danger of drawing men between reels of the conventional upright type, effecting a further saving in man power and accident liability. It can be depended upon to wind a beautiful roll that is very uniform in hardness.

Moreover the extra refinements added to this reel make it much handier than any of similar design. An instance of this is the ease with which paper is started on the drum. The passer does not have to change hands when performing this operation. Its simplicity and ease of operation is a revelation.

Let us know the face of your calender rolls and we will gladly submit a figure covering your particular case.

Beloit Iron Works BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS **Beloit, Wis., U. S. A.**

Established Since 1858

New York Trade Jottings

S. W. Dunning, paper manufacturers' agent, who has been located at 132 Nassau street for the past twenty-five years, will move early in April to 150 Nassau street.

* * *

Warren B. Bullock, of the American Paper and Pulp Association, and R. S. Kellogg, of the News Print Service Bureau, were in Washington the first of the week attending committee hearings on the new forestry bill.

* * *

Charles E. Robertson, for the past five years connected with the Whiting-Patterson Company, has joined the sales force of A. R. Melker at 110 East 42nd street representing the Ajax Paper Mills, Franklin Coated Paper Company, The J. P. Lewis Company and the Unity Paper Mills.

* * *

The Scandinavian Export Paper Company, Manhattan, has filed articles of incorporation with the Secretary of State at Albany, with capital placed at $30,000 to carry on a commission business. The incorporators are F. Lockwood and H. Svenson. The attorney is T. M. Spencer, 120 Broadway.

* * *

Thomas J. Burke, secretary-treasurer of the Cost Association of the Paper Industry and G. A. Ware, assistant secretary of the News Print Service Bureau, were on the New York Committee in charge of arrangements for the Uniform Cost Accounting Conference held in New York on Tuesday and Wednesday of this week. Practical problems involved in the establishment of uniform cost accounting systems were discussed during the two days of the conference, which was organized by the fabricated production department of the Chamber of Commerce of the United States. The benefits to be derived from uniform cost accounting, a typical plan for the organization of cost accounting activities and the function of cost accounting committees in developing uniform methods were among the topics taken up.

BOSTON PAPER TRADE DINES

(*Continued from page 32*)

Arthur C. Hall and C. S. Hall, John Carter & Co.; George E. Hall, Arthur E. Ham, A. E. Ham & Son; Edgar P. Hay, American Paper Goods Company; William E. Hewitt, R. S. Hibbard, D. B. Rising Paper Company; William H. Hilton, U. S. Envelope Company; N. R. Hopkins, Oxford Paper Company; T. H. Hubbard, J. A. E. Hussey, International Paper Company.

Col. J. P. Jordan, Jordan Card and Paper Company.

A. G. Keith, Hollingsworth & Whitney Company; John Kelley, International Paper Company; M. J. Kelley, P. H. Glatfelter & Company; John C. Kennedy, Carter, Rice & Co.; Carlton Knight, Knight, Allen & Clark; John F. Kuster, Andrews Paper Company.

G. F. Larcom, Hollingsworth & Whitney; F. A. Leahy, Eastern Manufacturing Company; H. A. Lindenberg, W. B. Livermore, Royden Loring, Arnold Roberts Company; Irving F. Lowe, Falulah Paper Company; Edson R. Lyman, Missisquoi Pulp and Paper Company.

M. L. Madden, Hollingsworth & Whitney Company; Russell G. Madden, American Writing Paper Company; F. W. Main, Worthy Paper Company; W. J. McLellan, Carter Rice & Co.; Bryant McQuillen, A. Storrs & Bement Company; F. H. Merrill, Andrews Paper Company; William A. Merrill, Hollingsworth &. Whitney; G. Stanley Morse, Valley Paper Company; H. W. Morgan, Carter Rice & Co.; Walter L. Muzzy, Proctor Paper Company.

Walter E. Perry, Crocker-McElwain Company; R. B. Pierpont, John Carter & Co.; W. E. Porter, Cook-Vivian Company; Frank W. Power, Arthur E. Pratt, Carter Rice & Co.; Major Walter M. Pratt, Colonel Chas. S. Proctor, Proctor Paper Company.

L. S. Reynal, American Paper Goods Company; C. Edward Rice, International Paper Company; William Ross, Cook-Vivian Company.

H. B. Sargent, F. Henry Savage, International Paper Company; H. C. Scranton, Judd Paper Company; Charles A. Shaw, Whitney Brothers; Walter S. Simonds, Train-Smith Company; Joseph D. Snell, Von Olker-Snell Paper Company; George T. Stanbridge, International Paper Company; W. N. Stetson, Jr., and Wm. B. Stevenson, A. Storrs & Bement Company.

A. A. Tanyane, PAPER TRADE JOURNAL; Harry C. Thayer, Hollingsworth & Whitney Company; Col. F. L. Thompson, F. Bendel Tracy, Fort Hill Paper Company.

H. C. Upham, Hollingsworth & Whitney Company.

John W. Vivian, Cook-Vivian & Co.; P. B. Von Olker, Von Olker-Snell Paper Company.

H. E. Waite, John Carter & Co.; E. C. Walker, Collins Manufacturing Company; T. Compton Walsh, Hollingsworth & Whitney Company; M. H. Warren, Arnold Roberts Company; S. W. Webb, Eastern Manufacturing Company; Herbert Weston and Percy E. Weston, Andrews Paper Company; S. L. Willson, American Writing Paper Company; Charles H. Wood, F. L. Wood, U. S. Envelope Company; Wm. H. Wood, Esleeck Manufacturing Company; Charles A. Young, Carter Rice & Co.

J. C. Young, Hollingsworth & Whitney Company.

Zellerbach Paper Co. Denies Charges

WASHINGTON, D. C., March 26, 1924.—Answers have been filed with the Federal Trade Commission by the Zellerbach Paper Company and the Carpenter Paper Company, in connection with the Commission's complaint against these two firms in docket No. 1124.

The Zellerbach Company in its answer "denies that for more than two years last past, or for any other time, or at all, it has combined and co-operated, or combined or co-operated, with the other named respondents, or any other person, or persons, to suppress competition between and among or between or among themselves or others, in the aforementioned territory or at any time or place, to enhance prices for the aforesaid commodities in which they deal, or otherwise, or at all; and deny that any sales have been pursuant to said alleged or any combination." The firm makes a general denial of the complaint of the Commission and concludes:

"This respondent denies that the aforesaid alleges combination or any combination has been entered into by the respondents, and deny that they have suppressed or combined to suppress competition in price between or among the respondents, or any other persons, and deny that any combination whatever has been entered into." The company asks that the Commission dismiss the complaint against it.

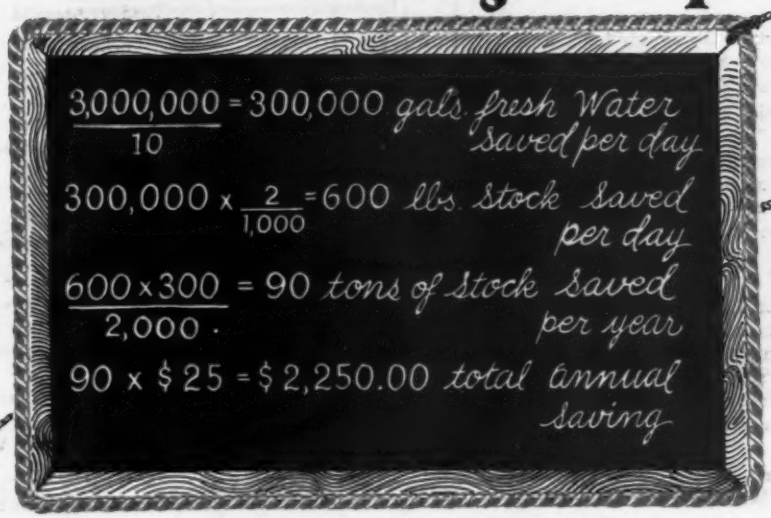
The Carpenter Paper Company also makes a general denial of the commission's complaint and "this respondent alleges that it never has in any respect whatever done any act or thing which would prevent competition between it and its said correspondents, or either of them, and alleges that it is now and at all times mentioned in said complaint has been in active and keen competition with said respondents."

Forced to Put on Double Shift

BOSTON, March 24, 1924.—The recent increase in the volume of business of the McLaurin-Jones Company of Brookfield, Mass., manufacturers of gummed paper, caused the company today to put into operation a double shift in order to fill its large increase in orders.

For several months the business of this concern has been very quiet as regards production, but within the past few weeks orders have come to the company in such large numbers that it was found necessary to operate the plant with two shifts.

Do You Use White Water For Showering Purposes?


3,000,000 / 10 = 300,000 gals. fresh Water Saved per day
300,000 x 2 / 1,000 = 600 lbs. Stock Saved per day
600 x 300 / 2,000 = 90 tons of Stock Saved per year
90 x $25 = $2,250.00 total annual Saving

Does it pay - *Figure it out for yourself*

Let us suppose that your mill uses 3,000,000 gallons of fresh water a day—not an uncommon amount.

Also let us suppose that you are able to reduce the quantity of fresh water by 10% by utilizing white water for showering purposes on knotters, screens, thickeners, deckers, wet machines, washers, paper machines, save-alls, and in other places where fresh water is now used. 10% is a very conservative estimate of the possible saving.

It is entirely reasonable to suppose that the stock loss per thousand gallons leaving your mill is 2–4 pounds. Multiply the stock loss by the number of gallons of water saved—the result is 600 pounds a day or 90 tons of stock a year. If this stock is valued at only $25 a ton the annual saving would amount to $2250 a year.

Isn't it worth your while to investigate the savings possible by greater white water utilization? Our free trial installation offer is especially attractive.

The Bird Self-Cleaning Shower Pipe is a practical self-cleaning shower pipe with which white water can safely be used. It can easily be installed wherever there's need for a shower. It enables you to reduce your fresh water requirements by using white water for showering purposes.

Let us hear from you.

BIRD MACHINE COMPANY
SOUTH WALPOLE, MASSACHUSETTS

Western Representative
T. H. Savery, Jr., 1718 Republic Bldg.
Chicago, Ill.

Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Ltd.
200 St. James Street
Montreal, Canada

BIRD *self cleaning* SHOWER PIPE

6248

MANY EVENTS TO MAKE PAPER WEEK A BUSY ONE

An innovation in the Forty-Seventh Annual Banquet of the American Paper and Pulp Association at the Waldorf-Astoria Thursday, April 10, will be the appearance of Geoffrey O'Hara, famous composer of "K-k-k-Katy" and pioneer among army song leaders, as the leader of community singing between the courses at the big dinner which will be the culminating feature of Paper Week.

The reservations for the banquet are so much larger than a year ago that tentative arrangements are already being made to prepare tables in the balcony of the Grand Ball Room to take care of the banqueters for whom there will not be room on the main floor.

That the association's policy of making its banquet program one of "Business—Not Politics," as a factor in this increased reservation is probably largely responsible for this increased attendance. This is not entirely the cause, however, for among the meetings to be held during convention week are several of groups which have been inactive for some time past.

Some of the Week's Events

On Tuesday there will be a meeting of waxed paper manufacturers to discuss a plan for reviving the old Waxed Paper Manufacturers' Association on a new basis of service to this group. The Converting Paper Mills Association will also hold a meeting on Tuesday. Another conference called for the same day is that of the Simplification Committee, to discuss the simplification of paper sizes.

On Wednesday the American Paper and Pulp Association has assisted the Bristol Board Manufacturers' Association to secure a meeting room, and this group also has not ordinarily held its meetings in conjunction with the other activities of Paper Week.

As still another feature of the 1924 convention is the meeting of the waterproof wrapping paper manufacturers, who formerly had an association of their own, but which was discontinued some time ago.

The Salesmen's Dinner

With the securing of Francis H. Sisson, vice-president of the Guaranty Trust Company of New York as the speaker for its morning session, the Salesmen's Association of the paper industry has completed a program of the greatest interest to all paper salesmen and mill executives. The indications of a large attendance at the dinner and smoker on Tuesday evening are so promising that for the first time in its history the Salesmen's Association will make table reservations for the early applicants. F. N. Countiss, chairman of the convention committee, has notified the members of the association that reservations for tables for eight or ten diners will be made no later than April 3, and smaller reservations must be in the hands of the committee not later than April 5.

The address by Mr. Sisson on "Business Conditions, Today and Tomorrow," will be the only formal address of the forenoon session, which will be devoted after his address to matters involving the future of the association, and the wider field of work which its leaders believe should be exploited.

Program for the Dinner

Henry A. Wise, with an address on "The Import Problem," will be the first speaker at the evening dinner which is to be strictly informal, and he will be followed by H. V. Kaltenborn of the Brooklyn Eagle, who will elaborate in a more extended manner the radio broadcasting talks in "Current Events," which have made his weekly talks famous among thousands of radio enthusiasts.

CONDENSED PROGRAM FOR THE WEEK

Monday, April 7

FORENOON

10:00 A. M.—Technical Association of the Pulp and Paper Industry, Room 109, 110, 151.

AFTERNOON

2:00 P. M.—Technical Association of the Pulp and Paper Industry, Room 109, 110, 151.

2:30 P. M.—Tissue Paper Manufacturers—Merchants Conference Committee, Room 120.

Tuesday, April 8

FORENOON

10:00 A. M.—Technical Association of the Pulp and Paper Industry, Myrtle Room.

10:30 A. M.—Converting Paper Mills Assn., Room 151.

10:30 A. M.—Salesmen's Association of the Paper Industry, East Room.

10:30 A. M.—Tissue Paper Manufacturers' Association, Room 110.

10:30 A. M.—Waxed Paper Manufacturers, Room 109.

11:00 A. M.—Simplification Committee, Room 100.

AFTERNOON

1:00 P. M.—Cost Association of the Paper Industry, Room 115.

1:00 P. M.—U. S. Pulp Producers' Association, Room 112.

2:00 P. M.—Gummed Paper Manufacturers' Association, Room 109.

2:00 P. M.—Technical Association of the Pulp and Paper Industry, Myrtle Room.

2:30 P. M.—Cover Paper Manufacturers' Association, Room 110.

EVENING DINNERS

7:00 P. M.—Salesmen's Association of the Paper Industry (Dinner and Smoker), Roof Garden.

7:00 P. M.—Tissue Paper Manufacturers' Association, Hotel Astor.

7:00 P. M.—Technical Association of the Pulp and Paper Industry, Hotel Commodore.

Wednesday, April 9

FORENOON

9:00 A. M.—Bristol Board Manufacturers' Association, Room 114.

10:00 A. M.—Technical Association of the Pulp and Paper Industry, Room 110, 151, Myrtle Room.

10:30 A. M.—Cardboard Manufacturers' Association, Room 109.

10:30 A. M.—Woodlands Section of A. P. & P. A., Room 115.

10:30 A. M.—Wrapping Paper Manufacturers' Service Bureau, Tea Lounge.

10:30 A. M.—Writing Paper Manufacturers' Association, East Room.

AFTERNOON

12:30 P. M.—Paper Makers Advertisers' Club, Room 112.

1:00 P. M.—Waterproof Wrapping Paper Manufacturers, Room 100.

2:00 P. M.—Glazed and Fancy Paper Manufacturers' Association, Room 109.

2:00 P. M.—Technical Association of the Pulp and Paper Industry, Room 110, 115, Myrtle Room.

2:00 P. M.—Woodlands Section of A. P. and P. A. (Joint Program with the Technical Association). Myrtle Room.

2:30 P. M.—Writing Association—Fine Paper Division, Room 114.

2:30 P. M.—Writing Association—Sulphite Bond Division, East Room.

Thursday, April 10

FORENOON

10:00 A. M.—American Paper and Pulp Association, General Business Meeting, Astor Gallery.

AFTERNOON

1:00 P. M.—Binders' Board Manufacturers' Association, Room 112.

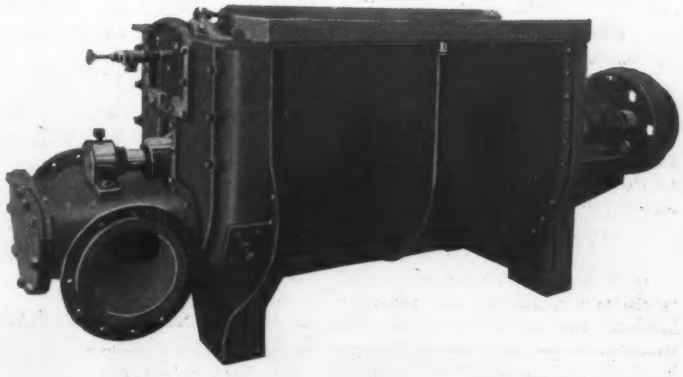
Famous Products Series No. 17

Valley Iron Works Company Equipment *is used in making* Marathon Specialties

It would be hard to estimate the thousands of dozens of flowers that have been sold by the slogan, "Say It with Flowers," and usually when anyone does "Say It with Flowers," the "message" is wrapped in Marathon paper. This is greatly because the paper is perfectly adapted to its purpose; the famous slogan itself, even, is watermarked on the sheet.

P.A.P.A. Inward Flow Rotary Screens are used in making this "Say It with Flowers" paper, which is used all over the United States and Canada.

The P.A.P.A. Rotary Screen is the only successful machine of its kind on the market. It can be used for either pulp or paper and results in a better sheet at a lower cost. Ask for further particulars regarding this exceptional piece of equipment. A letter will bring them to you.



Valley Iron Works Company

Plant: APPLETON, WISCONSIN

New York Office: 350 MADISON AVE.

See our display in Booth 87, at the Paper Industries Exposition, April 7-12th

PAPER AND PAPER STOCKS IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending January 31, 1924, and for the Seven Months Ended January 31, 1924, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER.

Paper and Manufactures of	January				Seven Months Ended January 31			
	1923		1924		1923		1924	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper, except printed matter (total)	.....	$9,338,452	.....	$9,483,789	.....	$55,124,481	.....	$68,497,031
Printing paper—								
Standard news print ....lbs..Free	214,118,415	7,810,775	215,187,033	8,234,614	1,300,730,485	46,192,800	1,550,114,357	58,326,156
Imported from—								
Finland ....lbs.	10,131,801	321,697	4,978,409	168,109	36,615,326	1,088,743	39,099,576	1,322,531
Germany ....lbs.	9,847,823	319,141	6,632,139	223,559	45,839,701	1,445,391	65,865,941	2,170,530
Netherlands ....lbs.	505,823	19,045	72,951	2,499	5,977,021	203,285	231,360	7,525
Norway ....lbs.	6,008,832	207,385	2,872,944	99,445	24,431,684	763,696	32,074,773	1,110,843
Sweden ....lbs.	17,125,552	543,326	9,916,457	317,437	70,831,968	2,214,072	76,315,465	2,480,514
Canada ....lbs.	168,792,291	6,337,838	190,483,207	7,418,173	1,112,715,618	40,338,750	1,331,685,752	51,082,289
Other countries ....lbs.	1,706,293	62,343	230,926	5,392	4,319,167	138,863	4,841,490	151,924
All other, n. e. s. ....lbs..dut.	1,214,607	63,524	1,643,928	68,098	5,769,519	328,654	10,530,415	502,294
Grease-proof and water-proof papers.lbs..dut.	309,257	28,137	263,144	22,999	[2]913,983	[2]78,263	1,860,522	173,677
Wrapping paper ....lbs..dut.	8,384,073	385,084	.....	.....	50,732,393	2,225,335	[4]44,709,325	[3]1,939,824
Kraft wrapping paper....lbs..dut.	.....	.....	2,926,480	111,283	.....	.....	[4]2,926,480	[4]111,283
All other wrapping paper....lbs..dut.	.....	.....	2,232,641	81,919	.....	.....	[4]2,232,641	[4]81,919
Writing, drawing, bond, etc....lbs..dut.	282,298	68,180	222,773	34,282	[2]987,776	[2]244,160	1,748,640	318,217
Surface coated ....lbs..dut.	110,739	23,307	84,770	21,716	543,029	148,803	671,681	162,154
Tissue papers ....lbs..dut.	163,191	72,232	245,018	97,697	[2]635,141	[2]252,684	1,248,713	499,729
Paper boards—								
Pulp boards in rolls....lbs..dut.	4,879,739	130,108	6,237,520	186,492	30,569,015	748,227	43,553,442	1,250,985
Other paper boards, n. e. s. ....lbs..dut.	1,972,001	59,701	1,775,350	45,562	[2]8,074,502	[2]230,721	13,881,891	412,592
Cigarette paper, cigarette books and covers ....lbs..dut.	1,310,253	313,431	577,414	127,799	.....	2,263,307	5,908,015	1,519,195
Photographic paper ....lbs..dut.	135,707	32,344	226,811	40,697	1,594,206	327,455	1,574,120	328,018
Hanging paper ....lbs..dut.	1,463,126	70,819	2,596,387	91,513	.....	356,451	8,811,544	375,896
Paper boxes ....lbs..dut.	.....	.....	112,225	74,701	.....	.....	[4]112,225	[4]74,701
Decalcomania, not printed....lbs..free	45,640	11,092	9,175	2,206	.....	61,438	202,461	51,282
All other ....lbs..dut.	.....	269,718	.....	242,211	.....	1,666,183	.....	2,369,109
Books and other printed matter (total)	.....	877,223	.....	558,130	.....	4,634,335	.....	5,286,547
Books and other printed matter.. lbs..free	.....	.....	.....	.....	.....	[1]881,331	.....	.....
Books and other printed matter.. lbs..dut.	.....	.....	.....	.....	.....	[1]578,820	.....	.....
Books and pamphlets in foreign language ....lbs..free	125,197	98,510	140,525	77,182	[2]643,587	[2]387,721	1,143,373	603,458
Books, maps, music, etc., 20 years old ....lbs..free	37,328	324,982	16,171	61,612	[2]122,643	[2]799,752	207,887	920,597
Other books, etc....lbs..free	146,609	127,829	154,557	100,376	[2]580,583	[2]455,382	1,226,658	814,714
Books, pamphlets, and music, n. e. s.lbs..dut.	187,072	207,905	229,478	156,935	[2]807,449	[2]739,100	2,046,174	1,446,121
Maps, charts and other printed matter, n. e. s. ....lbs..dut.	.....	40,332	.....	57,567	.....	[2]197,505	.....	468,150
Lithographically printed matter, n. e. s. ....lbs..dut.	.....	.....	.....	.....	[1]572,749	[1]179,601	.....	.....
Cigar bands, labels and flaps....lbs..dut.	9,661	10,978	13,171	15,332	[2]54,055	[2]54,070	153,997	135,546
Decalcomanias ....lbs..dut.	9,948	14,745	18,963	28,054	[2]61,299	[2]77,800	135,617	195,552
All other ....lbs..dut.	.....	51,942	.....	61,072	.....	[2]283,253	.....	702,409

CRUDE PAPER STOCK.

Rags for paper stock....lbs..free	25,765,167	532,902	25,802,558	552,297	205,116,836	3,334,760	223,256,968	4,008,029
Waste, bagging, waste paper, etc..lbs..free	12,068,784	176,184	6,370,418	77,387	[2]59,904,790	[2]728,789	56,723,412	696,674
Old rope and all other paper stock.lbs..free	9,731,640	414,363	8,451,577	473,589	92,682,950	2,828,957	54,436,369	2,666,346

WOOD PULP.

Mechanically ground ....tons..free	28,988	884,144	15,768	605,800	148,589	4,561,250	159,426	5,628,385
Chemical wood pulp—								
Sulphite, unbleached....tons..free	54,083	2,848,062	42,260	2,502,780	321,054	16,554,922	271,467	16,461,218
Sulphite, bleached ....tons..free	24,816	2,168,567	17,604	1,441,230	146,501	12,286,486	135,933	11,802,432
Total sulphite ....tons	78,899	5,016,629	59,864	3,944,010	467,555	29,841,408	407,400	28,263,650
Imported from—								
Finland ....tons	4,211	258,905	1,269	78,849	22,705	1,302,373	27,453	1,752,464
Norway ....tons	5,409	451,587	3,911	286,254	41,792	2,924,740	33,051	2,771,576
Sweden ....tons	42,745	2,294,850	24,434	1,359,924	212,842	11,507,436	130,751	8,654,912
Canada ....tons	22,675	1,764,858	23,703	1,633,095	174,126	12,155,078	168,785	12,082,735
Other countries ....tons	3,859	246,429	6,547	385,988	16,090	951,781	47,360	3,001,963
Sulphate pulp, unbleached (kraft pulp) ....tons..free	21,713	1,287,330	19,124	1,152,551	185,242	10,694,361	146,258	9,513,526
Imported from—								
Finland ....tons	671	32,302	252	14,740	9,350	458,174	4,889	305,370
Norway ....tons	495	28,015	1,019	52,296	5,413	286,589	6,237	389,975
Sweden ....tons	11,323	586,747	8,581	475,351	87,102	4,551,677	57,868	3,572,803
Canada ....tons	9,062	632,884	9,202	606,045	82,717	5,360,910	75,742	5,138,787
Other countries ....tons	162	7,382	70	4,119	660	37,011	1,522	106,591
Sulphate pulp, bleached....tons..free	3,121	167,844	88	5,774	19,007	1,073,327	5,020	354,094
Other pulp ....tons..free	264	20,969	21	2,991	[2]1,519	[2]73,438	5,637	343,641

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS.

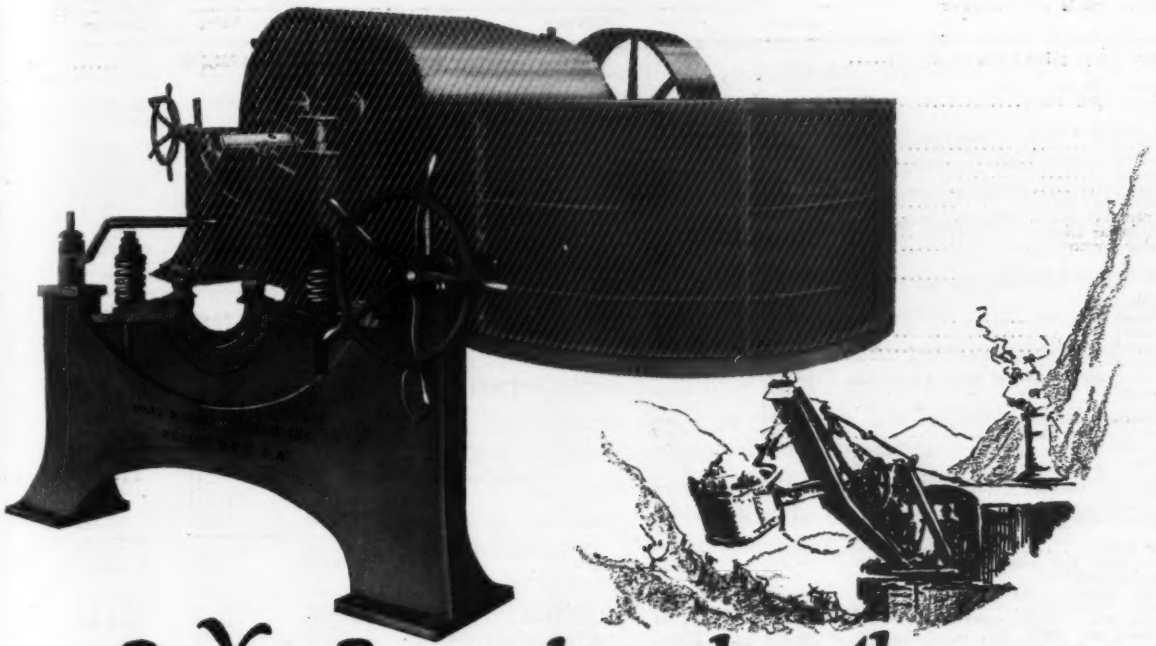
Colors, dyes, stains, color acids, and color bases, n. e. s. ....lbs..dut.	387,228	512,388	307,724	418,060	[2]1,143,523	[2]1,545,576	1,777,003	2,463,496
Imported from —								
Germany ....lbs..dut.	175,705	208,880	133,308	146,209	.....	.....	890,904	1,121,623
Switzerland ....lbs..dut.	119,527	172,192	112,589	182,363	.....	.....	476,923	756,644
United Kingdom ....lbs..dut.	4,127	2,914	1,059	2,271	.....	.....	51,836	58,184
Other countries ....lbs..dut.	87,869	128,402	60,768	87,217	.....	.....	357,340	524,045
Casein or lactarene.... lbs..free	.....	.....	.....	.....	[3]3,288,534	[1]346,431	.....	.....
Casein or lactarene.... lbs..dut.	2,911,971	444,595	1,219,777	154,461	[2]6,933,070	[2]959,347	8,924,444	1,289,704
Kaolin, china, and paper clay....tons..dut.	19,207	215,310	21,674	224,766	190,597	2,022,163	146,398	1,547,401

[1] July 1, to Sept. 21, 1922. [2] Beginning Sept. 22, 1922.

(*Continued on page* 40)

[3] July 1 to Dec. 31, 1923. [4] Beginning Jan. 1, 1924.

Dilts-



Do You Remember when the Panama Canal was Started?

1905—the year that the U. S. began the building of the Panama Canal—saw the perfection of the first rigid Lighter Bar Stand for Beater Engines by the Dilts Machine Works, Inc.

The rigid Lighter Bar Stand freed the tub from the strains and blows of the beater roll, made for easier adjustment of the roll, held the roll rigidly to its work, increased the life of the beating engine and eliminated lost time required for repairs.

The Dilts Machine Works, Inc., year after year has initiated other improvements of equal importance until today the Dilts Beating Engine stands far in the lead.

A detailed description of the latest Dilts Beating Engine will gladly be mailed to you on request.

6529

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

PAPER AND PAPER STOCKS IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 38*)

EXPORTS—PAPER

Paper and Manufactures of	January 1923 Quantity	January 1923 Value	January 1924 Quantity	January 1924 Value	Seven Months Ended January 31 1923 Quantity	Seven Months Ended January 31 1923 Value	Seven Months Ended January 31 1924 Quantity	Seven Months Ended January 31 1924 Value
Paper, except printed matter (total)	.....	$1,961,541	.....	$2,051,584	.....	$14,279,539	.....	$14,550,976
Printing Paper—								
News Print Paper.....lbs.	2,116,256	$116,440	3,364,343	$181,754	23,685,782	$1,120,550	18,362,332	$922,673
Exported to—								
Canada	143,645	9,202	105,115	8,347	1,237,763	77,403	720,294	58,056
Central America	110,138	5,456	40,358	1,898	922,549	50,003	663,090	32,157
Mexico	161,282	12,989	186,125	10,322	800,389	52,247	810,471	44,414
Cuba	778,483	39,503	1,879,673	88,769	11,402,361	488,011	10,890,651	498,649
South America	331,734	15,955	243,115	16,130	4,995,942	227,939	1,048,713	56,886
Japan	.....	.....	107,074	6,331	$71,988	39,506	878,825	55,923
Philippine Islands	538,063	29,788	432,208	22,733	2,869,927	137,437	2,373,747	115,026
Other countries	52,911	3,547	370,675	27,224	884,863	48,004	976,541	61,562
Book paper, not coated.....lbs.	1,994,114	214,956	1,370,430	151,648	17,978,132	1,750,352	13,949,281	1,589,126
Exported to—								
United Kingdom	56,017	13,183	114,250	13,270	363,924	76,870	426,201	81,935
Canada	295,890	37,445	152,198	19,076	1,627,825	187,361	1,085,957	141,726
Central America	43,107	4,341	43,216	5,117	298,030	31,770	497,970	62,098
Mexico	196,356	15,080	68,646	8,854	1,638,711	143,392	895,855	109,083
Cuba	529,143	54,013	303,351	33,543	4,106,816	389,920	2,987,057	327,169
Argentina	54,638	5,705	30,213	3,740	1,267,620	117,178	492,543	68,933
Brazil	159,347	17,678	4,168	989	1,022,275	109,866	383,044	43,901
Venezuela	26,209	5,776	11,223	1,241	432,207	47,877	325,156	34,740
Other South America	82,048	8,467	88,408	15,684	1,078,666	104,299	763,513	94,213
British India	47,470	5,384	7,283	966	114,582	13,351	68,513	8,743
China	26,337	5,847	62,634	4,849	809,619	74,325	2,116,254	204,332
Japan	73,486	6,570	63,188	7,158	1,672,758	129,280	1,150,708	111,599
Philippine Islands	316,619	26,163	113,307	8,333	2,365,810	203,731	1,494,078	139,911
Australia	34,608	3,774	46,067	5,038	535,999	56,332	531,550	71,984
Other countries	52,839	5,530	262,278	23,790	643,290	64,800	730,882	88,759
Cover paper.....lbs.	87,475	$15,551	77,389	$13,934	996,631	$135,510	663,606	$116,450
Grease proof and waterproof paper....lbs.	134,801	17,763	198,525	24,502	695,473	94,202	1,034,995	138,316
Wrapping paper—								
Kraft paper.....lbs.	67,183	4,202	77,092	8,469	399,971	31,714	584,468	58,021
Other wrapping.....lbs.	2,473,370	183,800	1,755,577	150,113	17,155,918	1,213,774	13,819,228	1,146,060
Writing paper, except papeteries.....lbs.	691,984	96,058	803,788	104,124	4,495,625	664,831	3,628,805	625,939
Surface-coated paper.....lbs.	386,786	62,350	297,841	60,651	2,213,000	313,286	2,162,215	332,343
Tissue and crêpe paper.....lbs.	322,375	71,645	262,302	61,774	1,860,260	501,777	2,094,527	544,165
Toilet paper.....lbs.	577,775	62,719	206,600	25,269	3,027,147	331,395	2,352,153	265,063
Paper towels and napkins.....lbs.	103,234	15,448	141,193	16,232	557,023	98,396	746,721	129,888
Bristols and bristol board.....lbs.	247,655	16,561	102,549	16,405	924,586	85,964	929,348	83,303
Paper board and straw board.....lbs.	3,063,590	149,995	5,704,224	236,732	28,249,130	1,263,291	35,449,513	1,583,031
Sheathing and building paper.....lbs.	196,362	7,902	414,848	17,543	3,866,697	129,473	2,454,883	116,258
Wall board of paper or pulp.....sq. ft.	670,960	26,530	1,748,143	59,780	7,328,116	246,443	11,763,131	423,043
Blotting paper.....lbs.	.....	.....	257,092	30,644	.....	.....	[1]257,092	[1]30,644
Filing folders, index cards and office statement forms.....lbs.	.....	.....	35,150	12,456	.....	.....	[2]35,150	[2]12,456
Cigarette paper and books.....lbs.	31,819	8,684	97,383	28,491	425,947	150,902	481,910	151,751
Photographic paper.....lbs.	82,151	99,098	126,460	129,943	745,898	806,066	861,345	774,849
Paper hangings (wall paper).....yard	2,278,607	47,465	2,865,890	73,318	9,475,691	206,913	13,111,288	315,122
Paper bags.....lbs.	639,041	58,445	637,908	79,496	6,069,509	538,812	4,426,235	495,190
Boxes and cartons.....lbs.	565,259	58,979	908,950	81,744	5,022,327	504,896	6,272,263	633,272
Carbon paper.....lbs.	68,444	53,463	59,070	42,755	380,892	295,550	493,855	382,385
Envelopes.....lbs.	218,583	42,550	155,961	38,089	1,517,725	299,120	1,606,565	327,677
Playing cards.....pack	1,220,301	141,395	367,110	54,225	4,841,717	588,539	4,096,780	471,202
Cash register and adding machine paper.lbs.	71,057	8,285	98,317	11,303	595,202	62,456	771,565	86,395
Papeteries (writing paper in boxes)...lbs.	25,897	8,167	20,740	8,903	251,746	88,650	244,333	100,000
Other paper and paper products, n.e.s..lbs.	4,051,243	373,090	2,114,892	331,287	25,739,722	2,756,677	16,387,810	2,696,354
Books, maps, pictures, and other printed matter (total).....lbs.	3,668,317	1,275,536	4,225,106	1,567,270	27,720,291	10,356,675	30,781,455	11,173,404
Books and pamphlets.....lbs.	1,839,170	642,236	2,527,213	876,401	14,004,778	4,914,677	17,161,991	5,646,612
Maps and charts.....lbs.	14,138	9,389	9,364	8,726	96,169	101,176	83,464	90,837
Music in books or sheets.....lbs.	32,733	25,024	43,921	28,211	286,413	193,860	378,646	218,147
Souvenir post cards.....lbs.	22,505	12,974	17,922	10,245	167,690	111,174	380,824	148,896
Lithographically printed matter, except post cards and maps.....lbs.	157,984	128,558	168,572	182,081	1,126,703	869,234	1,246,333	934,378
Other printed matter.....lbs.	1,601,787	457,355	1,458,114	461,606	12,038,538	4,166,554	11,530,197	4,134,534

WOOD PULP AND PAPER STOCK

Sulphite wood pulp.....tons	1,140	66,871	1,255	75,017	7,628	442,767	8,756	500,272
Soda wood pulp.....tons	179	14,077	.....	.....	1,557	121,951	990	93,984
Other wood pulp.....tons	142	5,898	40	3,817	1,469	47,990	2,206	120,538
Rags, and other paper stock.....lbs.	3,420,480	65,600	8,858,547	146,246	33,074,002	645,835	73,324,430	1,198,627

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery.....lbs.	1,524,105	211,564	2,812,413	488,394	6,205,884	948,250	6,505,556	1,240,040

[1] Jan. 1 to Jan. 31. [2] July 1 to Dec. 31.

A Four to One Shot

Southern Pines (long-leaf, short-leaf, loblolly and slash) are entirely suitable for manufacturing sulphate pulp.

This character of timber will reproduce from fifteen to thirty (depending on character of soil) cords per acre in twenty years. Northern woods require eighty to ninety years to reproduce the same quality of pulp wood.

In the South a cord of wood can be grown in one-fourth the time required in the North.

Northern mills are being more pressed each year for pulp supply. A haul of 500 miles is not uncommon.

At certain times of the year lumbering operations are halted completely by the weather.

Thirty per cent of the average fuel bill is for heating purposes. The climate calls for more expensive buildings. Production costs are high.

In the South—

Timber grows four times as fast.

Logging operations can be carried on the year round.

No expensive heating plants are required.

Cheap power and fuel is available.

Labor costs are low.

The haul of pulp supply is shorter.

No heavy carrying charges on large timber reserves for future operations are necessary.

THE SOUTH OFFERS A FOUR TO ONE SHOT

Development Department,
Seaboard Air Line Railway,
Oglethorpe Building,
Savannah, Ga.

Chas. A. McKeand,
General Industrial Agent

Clement S. Ucker,
Director of Development

THE SEABOARD—*Through the Heart of the South*

Editorial

Vol. LXXVIII New York, March 27, 1924 No. 13

HENRY J. BERGER, Editor

COMING EVENTS

American Paper and Pulp Association, Convention and Meeting of Affiliated Associations, Waldorf-Astoria, April 7-11.

National Paper Trade Association, Convention, Waldorf-Astoria, April 8-10.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria, April 7-11.

Salesmen's Association of the Paper Industry, Convention, Waldorf-Astoria, April 7-10.

Paper Industries Exposition, Grand Central Palace, April 7-12.

DEFINITIONS OF PAPER TERMS

Arrangements have been made with the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry to reprint in book form "The Definitions of Paper Terms" that have been running serially recently in the PAPER TRADE JOURNAL. Requests have been received so numerously for issues of the PAPER TRADE JOURNAL containing these installments of the Definitions, and which in most cases it has not been possible to supply, as to indicate that there is a real need in the paper and allied trades, as well as in some unexpected directions, for a work of this kind.

The Dictionary, which comprises approximately twelve hundred paper terms, was prepared by the Sectional Committee on Definitions of the Committee on Simplification of Paper Sizes, appointed by the Bureau of Standards of the Department of Commerce, and includes:

(a) The basic paper terms;
(b) The various commercial papers, the names of which, have in most instances, grown out of special uses to which the papers have been put;
(c) Various converted articles made from paper;
(d) Standard sizes of papers;
(e) Special finishes of papers;
(f) Miscellaneous paper terms.

So far as is known, this is the first time a work of this kind has been attempted and is the only one of its kind available at the present time.

The book will contain approximately ninety pages, will be bound in cloth, 6 x 9, and will preserve in attractive and convenient form for ready reference, information that everyone interested in paper in any manner will care to have.

The book will sell at the nominal price of $1.50, and as only a limited edition will be printed, orders should be placed at once. The book will be issued in April and orders should be sent to The Lockwood Trade Journal Company, Inc., 10 East 39th street, New York.

IMPORT PULP AND PAPER PRICES

The average import price of news print, according to statistics which have just been furnished for January by the Department of Commerce at Washington and which are the latest figures available, continued to show a slight increase, the figures for the month being 3.83 cents per pound as compared with 3.80 cents per pound for December, 3.76 cents per pound for November and 3.65 cents per pound for January of the preceding year.

The average import price of pulpwood continued to show a slight decline, the price for the month being $9.59 per cord as compared with $9.64 per cord for December, $10.20 per cord for November and $9.45 for January of last year.

The average import price of mechanical wood pulp for January was $38.42 per ton as compared with $32.77 per ton for December, $34.57 per ton for November and $30.50 per ton for January of the preceding year.

The average import price of unbleached sulphite pulp for January was $59.22 per ton as compared with $58.72 per ton for December, $63.34 per ton for November and $52.68 per ton for January a year ago.

The average import price of unbleached sulphite pulp for January was $81.86 per ton as compared with $86.90 per ton for December, $84.75 per ton for November and $87.38 per ton for January of the preceding year.

The average import price of unbleached sulphate pulp for January was $60.26 per ton as compared with $61.75 per ton for December, $64.80 per ton for November and $59.30 per ton for January a year ago.

The average export price of news print paper for January showed a considerable increase, the price for the month being 5.4 cents per pound as compared with 4.7 cents per pound for December, 4.9 cents per pound for November and 5.6 cents per pound for January of the preceding year.

Imports of wood pulp and other paper base stocks into the United States during January, 1924, declined 26.5 per cent in volume and 20 per cent in value compared with the same month last year, according to Commerce Department figures.

The greatest decreases were in receipts of bleached sulphite, which dropped 30 per cent in quantity and 33.5 per cent in value, and of unbleached sulphite which showed a loss of 21.8 per cent in quantity and 12.1 per cent in value.

Of the chemical pulps, imports of unbleached sulphate show the smallest loss, receipts during January amounting to 19,124 tons, valued at $1,152,551, a decline of only 12 per cent in quantity and 10 per cent in value compared with January, 1923. Imports of bleached sulphate were almost negligible, amounting to only 88 tons, valued at $5,774.

Imports of mechanical ground wood fell off 45.6 per cent in quantity and 31.5 per cent in value, while imports of rags were approximately the same as last year, and imports of old rope and similar stock show a decrease of 13 per cent in volume.

Exports of paper and board from Canada during the calendar year 1923, were valued at $93,770,957, an increase of $18,945,064, or 25 per cent over the previous year. During the same period 875,359 tons of wood pulp, valued at $47,027,496, were shipped abroad, an increase of 7 per cent in quantity and 14.6 per cent in value compared with 1922.

The most important gains were registered in exports of news print to the United States, which exceeded those of 1922 by $20,966,939, and also in exports of wood pulp and paper board to the United States, and of book, bond, writing, and wrapping papers to Australia, New Zealand, and Japan.

Canadian Paper Exports for February

According to the report issued by the Canadian Pulp and Paper Association the exports of pulp and paper from Canada in February were valued at $10,947,199, an increase of $47,149 over the total for January.

Comparison with the returns for February, 1923, shows a considerable increase in the value of the pulp and paper exports for last month, the value this year exceeding that for last year by $963,531.

Following are details for the various grades:

	February, 1924		February, 1923	
	Tons	Value	Tons	Value
PULP:				
Mechanical	14,004	$533,217	15,464	533,455
Sulphite bleached	14,713	1,060,777	12,526	1,105,616
Sulphite unbleached	12,679	686,955	12,950	696,128
Sulphate	12,298	725,926	9,525	618,342
Total	53,694	$3,006,875	50,465	$2,953,541
PAPER:				
News print	99,621	$7,339,535	84,395	$6,360,140
Book paper (cwts.)	1,242	7,496	3,259	20,790
Bond and writing	597	6,222	755	8,080
Wrapping	1,334	190,103	1,986	286,209
All other	.....	376,968	.....	354,918
Total	.....	$7,940,324	.....	$7,030,137

February exports of pulpwood amounted to 131,785 cords valued at $1,219,525; this is the highest figure recorded since August, 1923, and is a big increase from the 99,830 cords valued at $866,128 exported in February, 1923.

For the first two months of this year there has been a considerable increase in the value of the exports of pulp and paper over the corresponding two months of 1923, the total value for the current year being $21,847,249, compared with $20,281,921 last year, an increase of $1,565,328.

The following table gives the exports of the principal grades of pulp and paper for the first two months of 1923 and 1924:

	Two Months, 1924		Two Months, 1923	
	Tons	Value	Tons	Value
PULP:				
Mechanical	27,755	$1,034,034	45,356	$1,528,372
Sulphite bleached	26,399	1,964,187	26,214	2,306,946
Sulphite unbleached	31,995	1,713,518	28,642	1,507,390
Sulphate	23,247	1,373,947	20,127	1,304,101
Total	109,396	$6,085,686	120,339	$6,646,809
PAPER:				
News print	193,329	$14,448,602	167,184	$12,494,967
Wrapping	3,044	451,748	2,871	431,330
Book and writing (cwts.)	5,673	47,728	8,915	63,667
Paper board	.....	567,799	.....	429,737
Total	.....	$15,515,877	.....	$13,419,701

Simplified Practice Conference April 8

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 26, 1924.—William A. Durgin, chief of the Simplified Practice Division of the Department of Commerce is sending out a special letter to representatives of the paper trade asking them to attend a simplified practice conference at New York City on April 8. In his letter Mr. Durgin says in part:

"You are no doubt fully advised of Secretary Hoover's work in co-operation with the industries which wish to effect worth while savings through waste elimination, particularly by means of simplification and standardization of their products.

"As you know, a voluntary committee covering various branches of paper producers, distributors, and consumers, have made a survey showing present diversity. In June, 1923, a general conference of representatives of all interests formulated certain recommendations as summarized in the final committee report, and requested this Division of the Department to apply its machinery for broadcasting the action of the conference and so far as possible, securing the acceptance of individual concerns.

"This far the work has gone rather slowly, although several of the most important national organizations interested have given formal endorsements. Secretary Hoover is particularly interested in getting promptly such action as the industry feels will be to the best interest of all, and we are anxious to have your personal counsel as to the best method of progress.

"Through the kindness of Dr. Hugh P. Baker, we are arranging a meeting just previous to the annual convention of the American Paper and Pulp Association at eleven o'clock Tuesday morning, April 8, Hotel Waldorf Astoria, New York City. We shall deeply appreciate your personal attendance and full participation in the discussion.

"As you will note by the subjoined list, we are attempting to secure as competent representation as possible in a reasonably small group and if you and the other gentlemen will give us this most valuable support, we feel certain that the movement can be carried along to some real accomplishment.

"As in all activities of the Department, the initiative, control, and follow-through rest entirely with the industry. Our only purpose is to serve constructively."

Sutherland Paper Co. to Build

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 22, 1924.—The Sutherland Paper Company, at a meeting of the directors held Monday afternoon, awarded the contract for a large addition to its plant, thus securing facilities that will enable the concern to take care of its steadily expanding business.

The new structure will be erected by the O. F. Miller Company and will have 58,000 square feet of floor space. It will be one story high, with the exception of a section, two stories high, the intentions being to place the offices of the concern in the second floor. Reinforced concrete and steel will be used and the addition with the equipment will represent an outlay of $100,000.

With the completion of this structure, the present press room will be extended in proportion, making it one of the largest units of its kind in the Middle West. The present offices of the company are to be converted into a comfortable rest room for employees, being furnished to add to their comfort and general welfare.

It was only last summer that the Sutherland Paper Company completed the task of reclaiming and filling a large area of low land, just to the East and South of its plant. This was planted and seeded, making an attractive plot. Now that site must disappear to make room for the proposed addition.

Amalgamation of German Paper Interests

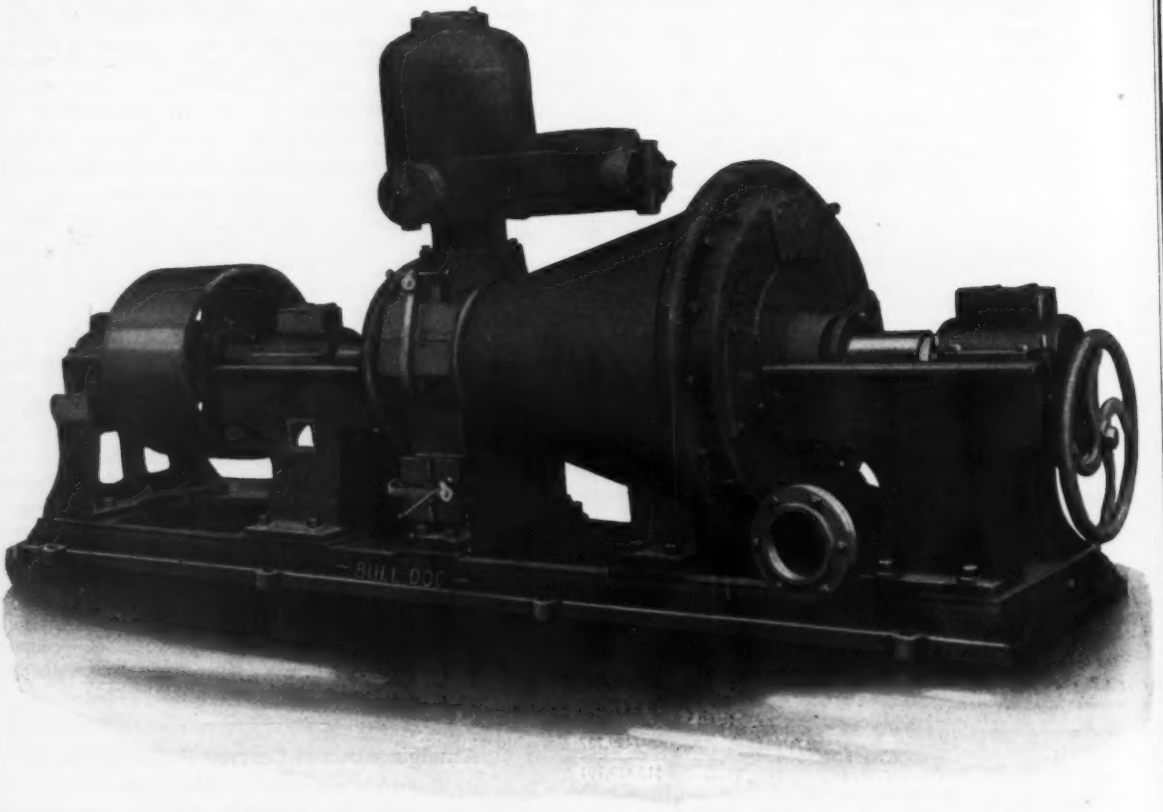
[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D.C., March 24, 1924.—Three of the leading groups in the German paper industry are the Natronag interests, the Aschaffenburger, and the Stinnes companies. The last serves chiefly the newspapers in which Stinnes is interested. The Natronag interest achieved a leading place upon their amalgamation with the Hartmann group, which also controls, among others, the Kostheimer Zellulose und Papierfabrik, the Dresdner Chromo- und Kunstdruckpapierfabrik, and the Papierfabrik Krappitz. The Hartmann interest acquired a majority of the stock in the Natron Zellgesellschaft and its affiliations from the Robert Friedlaender group.

The amalgamation was especially advantageous to the Natron interests, since it gave them a link with the extensive Castiglioni interests, prominent in the Austrian paper industry. The Natron Zellgesellschaft owns wood pulp factories at Altdamm, Stahlhammer, Arnstadt, and Brachelen. The Aschaffenburger differ from the Natronag plants in production methods, using only the sulphite process, while the latter manufacure soda pulp for the production of wrapping papers. The Aschaffenburger Papierfabrik owns all of the capital of the Niederrheinische Zellstoffaktiengesellschaft and the Zellulosefabrik Memel. Another important group is the Mannheim Waldorf Zellstofffabrik, which controls a number of companies both in Germany and abroad.

For Roofing and Felt Mills

THE BULL DOG JORDAN



DO NOT BECOME CONFUSED. There is only one BULL DOG JORDAN which is manufactured by us, and which was designed for roofing rag stock, and that only.

The fourteen representative roofing mills using the Bull Dog Jordan have found that their beating time is less than that in mills using the ordinary Jordan, or in mills using no Jordans. The mills now using the Bull Dog Jordan have thoroughly tested and tried the Bull Dog and some remarkable results have been shown.

The saving in time and power effected by the Bull Dog Jordan is apparent in their cost records. Why not lower **your** cost of production?

THE NOBLE & WOOD MACHINE CO.

Hoosick Falls, N. Y., U. S. A.

Canadian Builders: Port Arthur Shipbuilding Co., Ltd., Port Arthur, Ontario

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

THE SIZING OF PAPER*

By Prof. L. P. Zhereboff.

In order to carry on a scientific investigatiion or to perfect an industrial process one must have a guiding idea. When such an idea is supported by facts it is called a hypothesis. When a hypothesis is broad enough to lead to new methods, relations and facts, it becomes a theory.

The value of a theory is colossal. For example, the kinetic theory of gases permitted us to finally see the molecules and watch their movements.

However, when a theory fails to explain new facts it must be cast aside, since instead of leading us along the right road it really keeps us away from it.

If we should ask ourselves, what is the guiding theory in the field of paper sizing, the answer would be that it is the familiar theory of Wurster. This is clearly seen from a review of the latest books on papermaking.[1]

In 1900 the present author published his work on paper sizing,[2] the results of which led to the following conclusions:

1. There neither is, nor can there be, any filling up of the pores of paper, because the rosin can fill only an insignificant part of the volume of these pores. Thus, in post papers it would amount to 6 per cent of the volume of the pores, in calendered writing papers from 2 to 4 per cent, in machine finished writing papers from 1 to 1½ per cent.

2. There can be no wrapping of the fibers in finely divided rosin of the white size, because the total surface of the rosin represents only 5 to 7 per cent of the surface of the fibers which is to be covered.

3. Wurster's assertion that in sizing all of the rosin is precipitated as free rosin due to the presence of an excess of alum is incorrect, since the writer's experiments have shown that in the beater, on the wire, and in the paper itself there is present aluminum resinate along with the free rosin which represents only 10 to 60 per cent of the total rosin used.

The writer's work appeared in the Russian language and evidently did not reach Wurster and his adherents.

However, during that same year, at the congress of papermakers in Paris, the French makers of the highest quality of papers —and sizing is best studied on fine papers—definitely declared themselves against Wurster.

Berges, Outhenin-Chalandre pointed out that in some cases it is impossible to get sizing results with white size, and brown size, i. e., size which contains no free rosin, must be used.

Loran stated that the mills sizing with 2 per cent rosin can use any kind of size, but those who must use 6 to 7 per cent have difficulty with free rosin.

The French chemists disagreed with Wurster, also, on the question of the effect of soft and hard waters on sizing.

One year later Wurster reprinted his earlier article in "Le collage et la nature de papier" and stated that on the basis of 25 years' experience he finds nothing he can add to or eliminate from his published ideas.

The followers of Wurster did, however, try to meet some of the objections to his theories. Thus Klemm[3] attempted to determine the amount of alum necessary to precipitate free rosin from rosin soap. He said, "For good sizing *there should not be formed any rosin salts or any basic inorganic salts." His chief concern is about uniform pores in the paper so that the rosin would not be washed away on the wire.* In other words, the Wurster idea about the fritting of the rosin on the drying cylinders (Feuchter wärmung) still prevails. Klemm also advises increasing the amount of free rosin in size, and also advocates the use of excess of alum in order to form the soluble[4] dibasic aluminum salt, instead of the insoluble tribasic salt which is wetted by ink[5].

The reaction between rosin soap and alum was also worked on by J. Remington[6] with Bowack and Davidson, by Neugebauer[7], by Heuser[8], and still earlier by A. Fast[9].

Fast determined the composition of the precipitate obtained by the action of alum on white size in the following proportions: per 100 parts of rosin he took 33.3 parts, 100 parts, and 300 parts, of anhydrous aluminum sulphate.

Neugebauer precipitated a neutral size solution containing 0.25 per cent sodium resinate with aluminum sulphate varying in amounts from 50 to 400 parts per 100 parts of rosin.

Finally, Heuser worked with pure chemicals in equivalent amounts.

Fast and Neugebauer extracted the free rosin from the precipitate with alcohol. The residue was analyzed for Al_2O_3. Fast also first treated the residue with ether, benzole, and chloroform in order to separate the neutral aluminum resinate, and then determined the Al_2O_3 both in the solution and in the residue after those treatments.

Since Fast used size containing 20.35 per cent free rosin, the present author is subtracting this amount from the total amount of free rosin found in the precipitate. Fast's results then appear as follows:

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	%	%	%
$Al_2(SO_4)_3$ used per 100 parts rosin	33.3	100.00	300.00
Extracted by alcohol	1.12	14.94	24.57
Extracted by ether, benzol, chloroform	52.43	49.80	41.99
Insoluble residue	26.10	14.91	13.09
Total	79.65	79.65	79.65
	Aluminum in the residues		
In the residue from alcohol extraction	0.15	0.18	0.16
In the residue from ether, benzol, chloroform	3.04	2.76	2.83
In the insoluble residue	8.42	8.52	8.38

These results show that even using 3 parts of anhydrous aluminum sulphate to 1 part of rosin only 37 per cent of the combined rosin is precipitated as free rosin, and with smaller amounts of alum still less free rosin is precipitated.

Neugebauer's results were:

$Al_2(SO_4)_3$+18 aq. taken per 100 parts rosin	50	100	140	160	200	300	400
Free rosin extracted by alcohol in %	31.0	32.1	31.5	33.0	33.2	38.0	41.0
Found in insoluble residue, Aluminum	3.8	4.0	3.9	4.2	4.1	4.6	5.2

Comparing the results of Fast and Neugebauer we get:

Alum used per 100 parts rosin	50	67	200	300	400
Fast, calculated on saponified rosin	...	1.5	19.4	37.1	...
Neugebauer calculated on saponified rosin	31.0	...	33.8	38.0	41.0

It is seen that while Fast's results show a rapid increase in the decomposition of aluminum resinate with increasing amounts of alum, Neugebauer found that excess of alum changed the results only slightly. However, both cases prove that even large excesses of alum do not break up the rosin salts completely, and not less than 2/3 remain undecomposed.

In the residue, Neugebauer finds 3.8 to 5.2 per cent Al. This, he considers to be the basic aluminum salt with aluminum content of 3.7 per cent, the molecular weight of rosin being taken as 353. In his opinion the larger the excess of alum the greater the amount of basic salt formed.

Fast by extracting the first residue with ether, benzol, and chloroform separated it into 2 parts. The dissolved part corresponded to the formula $Al_2(C_{20}H_{30}O_2)_6$ which contains 2.91 per cent Al (2.88 per cent average in above analyses), while the remainder he believes to be some unknown aluminum salt with a very high aluminum content.

The large difference in the analyses of the residues of the two investigators disappears if Fast's results are re-calculated disregarding the second extraction with ether, etc., thus:

Alum used, %	33.3	100	300
Aluminum found, %	4.83	4.08	4.15

Average = 4.35%, which is close to Neugebauer's average of 4.26%

J. Remington also found that the effect of using excess of alum was not in agreement with Wurster's ideas.

Finally, Heuser and Nauels, using equivalent amounts of size and alum, obtained a neutral salt free from basic salts.

C. Schwalbe[10] states that aluminum hydrate is formed during the sizing operation and this serves to protect the rosin from oxidation. Klemm and Dr. Klein seriously considered this hypothesis, but found it difficult to prove.

An important recent development is the consideration of the part played by the fibers in sizing.

Cross and Bevan adhere to the view that a changeable colloidal system is formed: cellulose—alum—rosin, where the colloidal amphoteric alumina forms a compound whose composition and properties depend upon the extent of its hydration. Remington and Schwalbe[11] also stated their belief that cellulose plays its part in sizing.

Thus, during a quarter of a century, laboratory experiments by Fast, Neugebauer, Remington and Schwalbe supported the present author's contention that excess of alum does not decompose aluminum resinate as was claimed by Wurster, but on the contrary, there are present in paper both free rosin and aluminum resinate.

Also, it was found (Remington, Heuser) that the papers investigated by Wurster contained aluminum resinate, and even in greater quantities than I showed (27 to 48 per cent) since these investigators proved that aluminum resinate decomposed on warming with alcohol or ether.

Wurster's contention about the formation of an insoluble dibasic aluminum salt which, being distributed among the free rosin particles, prevented these from running together, was shown to be wrong, for the salt was really soluble. On the contrary, when there is not enough alum, the tribasic salt may be formed which is easily permeated by ink (Klemm, Heuser).

In other words, *the opinion of the writer that sizing is not dependent upon the filling up of the pores with rosin globules, but that the sizing factors are a molecular layer of rosin and, perhaps, of aluminum resinate and also colloidal cellulose which is formed during beating, is gaining support* (Cross and Bevan, Remington).

Therefore, none of Wurster's contentions are supported, the theory is based on false facts and must be rejected once and for all. That the Wurster edifice is falling in ruins is still further proven by the efforts to prop it up with Klemm's Feuchterwärmung and Schwalbe's Schutzschichten theories.

If we should ask the majority of paper technologists what they size paper with, the answer would probably be the same as that given by Illig 116 years ago—with rosin. And this is due to the fact that there persists the adherence to a theory which was once useful, but is so no more.

Since 1806, when Illig, who was not a chemist, published his views, rosin was studied by Braconnot[12], Bouillon Lagronge [13], Gay Lussac[14] and Thenard, Sanssure[15], Bonastre[16], Unverdorben[17], Baup[18], Bussy et Lecanub[19], and finally by Caillot[20].

These authors separated from rosin the acids which they named sylvic, pinnic, abietic, pimaric. Unverdorben found in French rosin two acids: amorphous pinnic and crystalline sylvic, the latter only 15 per cent of the whole. Loran[21] found also in the same rosin pimaric acid, melting at 125°, and corresponding to the formula $C_{20}H_{30}O_2$. Tromsdorff[22] ascribes the same formula to sylvic acid obtained from American rosin. Baup called the acid found in French rosin and forming flat triangular crystals, pinnic acid.

Sievert[23] finds that sylvic and pimaric acids are not identical, since the melting point of the first is 162° and of the second 155°C.

Maly[24] ascribes to abietic acid obtained from American rosin the formula $C_{44}H_{64}O_5$, this being 80 per cent of the total weight.

Fluckiger[25] finds that abietic acid crystallizes in triangular plates, while pimaric acid forms quadrangular plates.

Emmerling's formula for abietic acid is $C_{44}H_{66}O_5$. Duvernoy (1868) obtained pimaric acid corresponding to $C_{20}H_{30}O_2$. Dietrich[26], Liebermann (1884), Haller (1886), Caillot[27], Westerberg[28], Mach, Reicheubach (1896), studied the melting points and optical activity of the rosin acids. Finally, as a result of the work of Westerberg[29], Levy[30] and Koritchoner, the formula $C_{20}H_{30}O_2$ was generally accepted.

The preceding brief review of rosin investigations shows how little was accomplished during almost a century of work by prominent chemists of Europe. Another striking feature of the work is the fact that all efforts were concentrated on studying the separate acids instead of rosin as a whole.

The results obtained were insignificant because the problem is really a difficult one. All rosin acids are mutually soluble, making it difficult to separate them. They also are capable of changing into isomeric acids. They are of high molecular weight on account of which the determination of the content of carbon and hydrogen does not give definite results. In the determination of carbon by combustion a variation of 0.15 per cent makes it doubtful whether C_{19} or C_{20} is correct. For this reason in the latest investigations the acidimetric method was used.

As to the question of investigating rosin as a whole, the reason this was not done is, because the work was carried on by theoretical chemists instead of by technologists. The so-called pure chemist is, as a rule, interested in some component part or some special property of a complex he is studying, while the technologist is concerned with the complex as a whole.

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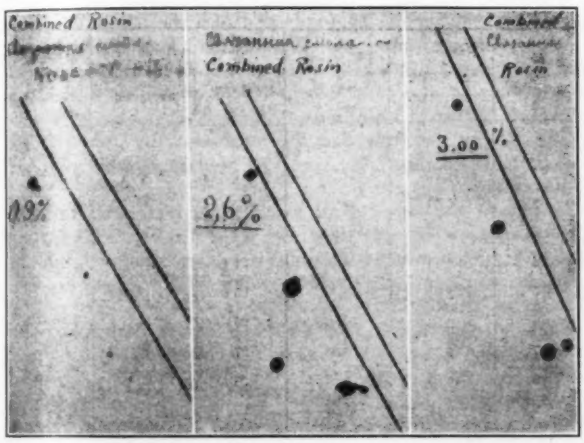
We know next to nothing about the composition of colophony. Unverdorben in 1824 spoke of French colophony as containing 15 per cent sylvic acid; the rest, except for substances insoluble in petroleum, ether and turpentine, being pinnic acid (which neither he or anyone else ever saw).

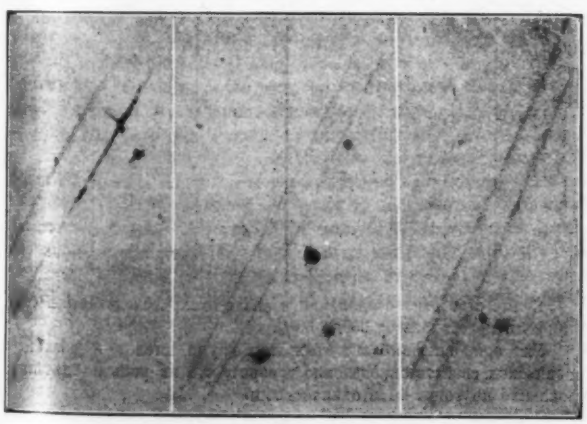
Maly found 80 per cent abietic acid in American colophony and asserted that this was present as anhydride.

Henriques[21] was led to the conclusion that there was a considerable amount of lacto-acids in colophony, but this was later disproven[19].

In 1903 Tschirch and Studer[22] presumably give a comprehensive answer to the question of composition of American rosin. They found the following composition:

	Per cent
α—abietic acids	30
β—abietic acids	20
γ—abietic acids	31.6
Resins	5.6
Ether oils	0.7
Bitter substances	0.1
Loss	12.0
	100.0





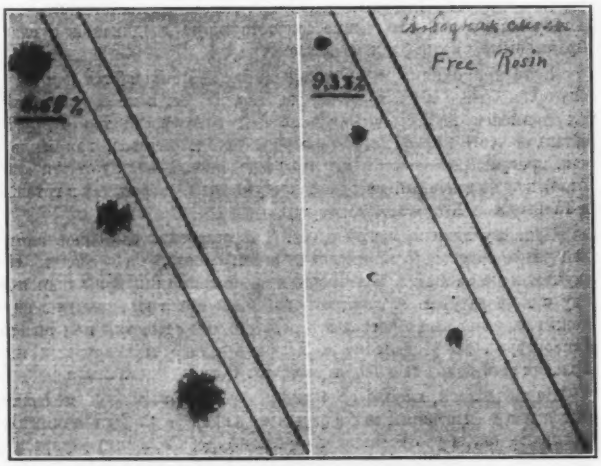
PHOTOGRAPH 1-1A

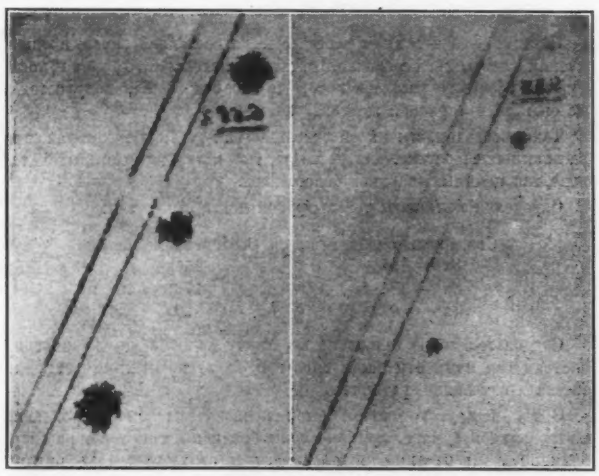
Evidently the analysis was complete to 0.1 per cent. However, the above data will not stand close scrutiny.

Tschirch and Studer separated the acids by extracting an ether solution of colophony first with ammonium carbonate (which extracted α and β acids), then with sodium carbonate (γ-acids), and finally with caustic soda. They shook up the rosin with the ammonium carbonate 600 times, which must have had an effect on the oxidation of the acids. The method of separation by means of Na_2Co_3 and $(NH_4)_2CO_3$ cannot be considered accurate; all depends upon concentrations.

The authors stopped at 600 extractions because the last extracts gave the same amount, namely, 0.1 g. Therefore, had the process been continued there would be left nothing as γ-acid.

The acids obtained were changed: Out of 260 g. obtained by the aid of $(NH_4)_2CO$, only 5 to 10 g. remained as α and β acids.





PHOTOGRAPH 2-2A

What has happened to the other 250 g., and how can we speak of 30 per cent α and 20 per cent β acids? That the work of these authors was not considered trustworthy is seen from the fact that it is not quoted in the literature.

One point of interest does, however, stand out. The acid which was named α-abietic analyzed: C-78.86, H-9.62 and O-11.52 (by difference) and was given the formula $C_{19}H_{28}O_2$[24].

This acid is insoluble in petroleum ether, on saponification in cold it gives an acid number (sz)—176.4, while in hot the saponification number (vz) is 245.28, i. e. the ether number is 69. On saponification in cold for 48 hours, vz was 256.20, making the ether number=80. Therefore, according to Henriques we have here a lacto-acid, and according to Fahrion, strongly oxidized abietic acid (oxyacid), although organic analysis definitely indicates the presence of only two oxygens.

In an investigation of paper size conducted with Kamenski the present author obtained a similar acid, insoluble in petroleum ether, having flat triangular crystals and possessing a high ether number.

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On crystallizing the first time it was observed that the crystals were of two colors, white and yellow.

On separating these and recrystallizing, two isomers were obtained, a white one and a yellow one, of the same formula $C_{20}H_{30}O_2$ and possessing the following constants:

	White crystals	Yellow crystals
SZ	180.8	181.0
VZ	260.7	260.0
Aez	79.9	79.0

(The slight difference must be due to experimental error).

Free and Combined Acids

Since in the attempt to study the mechanism of sizing it was found that a fuller knowledge of the basic material—rosin—must be had, the work outlined below was undertaken.

A simple method proved that rosin acids consist of two groups sharply distinct from each other. If we dissolve rosin in a mixture of petroleum ether and ethyl or methyl alcohol, and then add a few drops of water, we observe the separation of the solution into two layers: a light upper layer and the lower of a dark color. Separating the layers and evaporating the solvents we get the two mentioned groups of acids. The petroleum ether group is light yellow, very much like resin exuding on cutting into a fir tree, easily floating, very sticky, insoluble in aqueous spirits; the part soluble in the aqueous alcohol is dark colored, immobile even at 90 deg. cent., becomes covered with a solid layer, is practically non-sticky, and at room temperature it is dark, glass-like, very brittle, easily soluble even in a 50 per cent alcoholic solution. The soap made from the first acids froths only slightly, while that from the second gives much froth on shaking.

With 70 per cent methyl alcohol and a solution of colophony in petroleum ether it is possible quantitatively to separate the two groups, as is seen from Table I.

It is seen that the first twenty treatments separate from the rosin 47 per cent of the dark substances, which do not possess rosin properties. The last twenty extracts add only 1½ per cent more.

In a unmber of samples of colophony examined the amount of the dark compounds was found to vary between 35 and 50 per cent. The very difference in appearance between the two groups of acids and the difference in their physical properties indicates that the part played by each in paper sizing cannot be the same.

TABLE I

Extract No.	Extracted %	Total Extracted %	Extract No.	Extracted %	Total Extracted %
1	10.92	10.92	21	0.26	.....
2	5.60	16.52	22	0.22	.....
3	4.76	21.28	23	0.19	.....
4	4.28	25.26	24	0.16	.....
5	3.81	29.37	25	0.14	47.71
6	2.56	31.93	26	0.12	.....
7	2.38	34.31	27	0.10	.....
8	2.50	36.81	28	0.08	.....
9	2.14	38.95	29	0.07	.....
10	1.82	40.77	30	0.06	48.14
11	1.31	.....	31	0.052	.....
12	1.11	.....	32	0.044	.....
13	0.94	.....	33	0.040	.....
14	0.80	.....	34	0.037	.....
15	0.68	44.61	35	0.031	48.34
16	0.58	.....	36	0.026	.....
17	0.49	.....	37	0.022	.....
18	0.42	.....	38	0.019	.....
19	0.36	.....	39	0.016	.....
20	0.31	47.00	40	0.014	48.44

A similar separation of the two acid groups can be made through fractional neutralization. The acids with the more pronounced rosin properties are the stronger acids and are the first to react with alkali. If the amount of alkali used for saponification is insufficient, then we get a salt or soap of the real rosin acids with the darker compounds dissolved in it.

In order to compare the sizing value of each of the two component groups of rosin, tests were made using size made at a paper mill and also prepared size from Talheim and Kümmel.

In one experiment the size was diluted with a small amount of alcohol in order to make it more fluid and this was then added drop by drop with constant stirring into water at 30 deg. cent., causing the free rosin to drop out while the soap remains in solution. At a higher or lower temperature of the water the separation is not as good and either an emulsion is obtained or else some of the soap is carried down in the precipitate.

After separation the free rosin is washed and made to float over a saturated solution of common salt. For purification this rosin is dissolved in sulphuric ether, and the fluorescent ether solution is washed several times with water to remove any traces of soap. After washing, the ether is distilled off, leaving behind the dark, slightly transparent free rosin.

The aqueous solution of the soap is then also extracted with ether after acidification with weak sulphuric acid. The ether solution is washed with water and the ether distilled off, giving a light, transparent yellowish rosin.

Determining the constants of the two parts of the rosin we get:

	Combined rosin	Free rosin
SZ	184	150
VZ	184	179
AeZ	...	29

Evidently each part is different from the other not only in appearance and physical properties, but also chemically.

Sizing tests were made with each of the above on filter paper. The rosin was used in alcoholic solutions of different concentration, and the papers dipped in these solutions and after absorbing a calculated amount of rosin, were dried at 80 deg. cent.

The photographs show that the paper was sized with 2.6 per cent of combined rosin[20], but even 9.33 per cent of free rosin gave no sizing fastness to the paper.

Judging by the sample sized with 0.9 per cent combined rosin, the paper should be fully sized with 1.5 per rosin. With 0.9 per cent of combined rosin better sizing is obtained than with 9.33 per cent of free rosin, i. e., the sizing effect of the former is more than 10 times better.

Thus, it becomes clear, why the white size has earned for itself a secure place in the industry, in spite of the faults of the theory which supported it.

We use white size not because we want the globules of the emulsified free rosin to fill up the pores of the paper and to cover the fibers, which they are anyway not able to do, but in order to insure ourselves agains the covering up of the fibers by these useless for sizing elements of the rosin. It is a sort of a precaution against poor sizing results.

Similarly, we are now able to understand why modern practice has stopped at 30 to 40 per cent free rosin, although it is possible to produce a size with 90 per cent of free rosin[21] which would be desirable from Wurster's point of view. We have already seen that to have greater amounts of free rosin would mean to sacrifice the usefulness of that portion of the rosin which is needed for the delicate sizing re-actions on the fiber surfaces.

Now about the latest annexes of Klemm and Schwalbe. According to Klemm, unless we have Feuchterwärmung, the precious elements of free rosin will crack, but we see that elements possessing sizing properties cannot crack, because they always remain in the plastic state of the rosin drop. The useless elements of the rosin can crack, but that need not worry us.

Schwalbe's anxiety is also misdirected. He is trying to protect from oxidation those elements which have no sizing value.

The Constants of Colophony

Since the time of Kötstörfer and especially of Smidt and Erban[22] it has become customary in the analysis of rosins and waxes to determine the amount of KOH required to neutralize them in hot and in cold. The first was designated SZ (Säure-Zahl), the second KZ (Kötstörfers-Zahl), and these represented the milligrams of KOH required to neutralize one gram of rosin or wax. Later in Germany KZ was replaced by VZ (Verseifungs-Zahl) because it was supposed that the difference between SZ and KZ is due to the

presence together with the acids of ethers and anhydrides which are saponified only in hot solution. I intend to show that this is not so, and I have therefore preserved the designation KZ.

The difference between SZ and KZ was designated by AeZ.

In Table II are brought together the constants for a number of samples of rosin. To these can be added 62 determinations made by E. and K. Dieterich ("Halfenberger Annalen" for 1886-1895) in which SZ varied between 152 and 177, as well as the data of Williams[39] as follows:

SZ	167	179
KZ	176	196
AeZ	7	23

The limiting values in Table II are:

SZ	146	179
KZ	166	196
AeZ	5	23

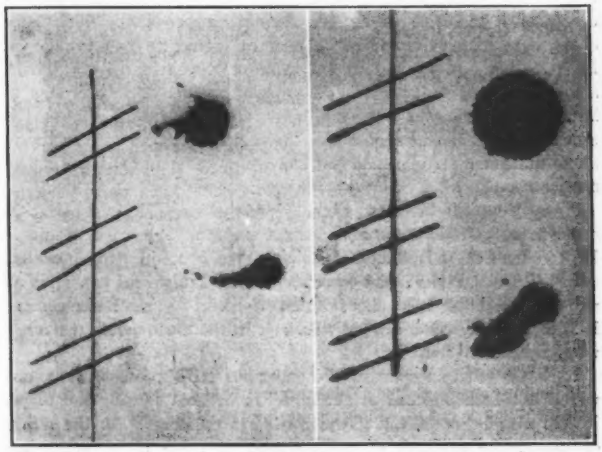
Comparing these values with those obtained for the "free" rosin (SZ—150, KZ—179, AeZ—29), it appears that the latter represents a poorer quality of rosin than ever fell into the hands of any investigator.

TABLE II

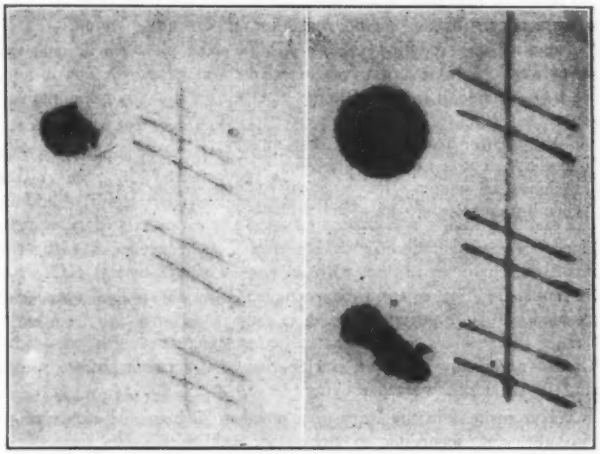
No.	Origin or name of rosin	SZ	KZ	AeZ	Insoluble in petr. ether %	Investigator
1	American (old powder)	136	180	44	...	Hager[40]
2	American (old powder)	144	196	52	69	Hager
3	Austrian	146	166	20	...	Schmidt-u. Erban[41]
4	Austrian	147	168	21	...	Schmidt-u. Erban
5	Of unknown origin, dark	151	...	..	...	Kremel[42]
6	Stump rosin	154	166	12	...	Zhereboff
7	American (old powder)	154	198	44	34	Hager[42]
8	American F_1	156	...	..	5.8	Schwalbe[43]
9	American light yellow WW	157	171	14	3.7	Hager
10	American dark	157	174	17	...	Hager
11	American dark J	157	165	8	...	Hager
12	American light G	157	171	14	...	Hager
13	American F_3	158	...	..	4.3	Schwalbe
14	American E_2	158	...	..	5.0	Schwalbe
15	American F_2	159	...	..	3.0	Schwalbe
16	American light E	160	168	8	3.9	Hager
17	American light H	160	171	11	...	Hager
18	American yellow	160	177	17	9.3	Hager
19	Stump; part insoluble in petr. ether	160	208	48	...	Zhereboff
20	Stump rosin	161	172	11	...	Zhereboff
21	American[44] (old powder)	162	215	53	...	Zhereboff
22	Of unknown origin, yellow	162	169	7	...	Amsel[45]
23	Of unknown origin, light	163	...	..	...	Kremel
24	Stump rosin	163	174	11	...	Zhereboff
25	American E_3	163	...	..	5.6	Schwalbe
26	American F_5	163	...	..	1.8	Schwalbe
27	American G_1	163	...	..	2.9	Schwalbe
28	American C	163	...	..	2.7	Schwalbe
29	American	164	184	20	...	Zhereboff
30	American E_4	165	...	..	4.5	Schwalbe
31	French 000_1	165	...	..	3.6	Schwalbe
32	French R	165	...	..	0.6	Schwalbe
33	American F	166	180	14	...	Hager
34	Stump rosin	166	181	15	...	Zhereboff
35	American F	167	172	5	...	Zhereboff
36	Of unknown origin yellow	167	175	8	...	Amsel
37	American, reddish	168	177	9	3.3	Hager
38	American G_3	168	...	..	4.7	Schwalbe
39	American H_1	168	...	..	2.7	Schwalbe
40	French I	168	...	..	1.1	Schwalbe
41	French K	168	...	..	4.2	Schwalbe
42	French S	168	...	..	2.1	Schwalbe
43	American G_4	169	...	..	2.5	Schwalbe
44	French A	169	...	..	0.1	Schwalbe
45	French B	169	...	..	1.0	Schwalbe
46	Greek 2	169	...	..	6.7	Schwalbe
47	English	169	...	..	...	Kremel
48	American G_2	170	...	..	3.2	Schwalbe
49	French C	170	...	..	0.6	Schwalbe
50	French 000_2	170	...	..	0.6	Schwalbe
51	American H_2	171	...	..	5.4	Schwalbe
52	Greek 3	171	...	..	7.4	Schwalbe
53	Greek 5	172	...	..	1.7	Schwalbe
54	Of unknown origin, white	172	179	7	...	Amsel
55	Greek 4	173	...	..	1.3	Schwalbe
56	American	173	...	..	...	Kremel
57	American H	173	184	10	...	Zhereboff
58	American H	174	183	9	...	Zhereboff
59	American J	174	186	12	...	Zhereboff
60	American J	175	185	10	...	Zhereboff
61	Part soluble in petr. ether	177	182	5	45.0	Henriques
62	Part insol in petr. ether	177	228	51		
63	Theoretical, according to formula $C_{20}H_{30}O_2$	185.4	185.4	0	...	.....

The residue left on dissolving rosin in petroleum ether, the so-called "insoluble," has of late been recorded as a constant. Fahrion, Weger, Labatut, Reishenbach and Schwalbe consider the insoluble part to be oxidized rosin, but this view will be shown to be incorrect.

At present it is to be pointed out that the method used for its determination is inapplicable, because, due to the high mutual solubility of the rosin acids, the value obtained is sometimes less than one-tenth of the insoluble amount actually present. The rosin which gave 52 per cent of acids remaining in petroleum ether by the author's method (Table I), showed only 1.3 per cent of



Sample No. 3 Kept in Dark — Sample No. 4 Exposed to Sunlight



No. 3 — No. 4

Reverse Side of Paper

"insoluble" by the method of Schwalbe, while of the 48 per cent extracted by 70 per cent alcohol more than half were found to be insoluble in petroleum ether.

Were it not for the mutual solubility of the acids, it would have been found in Table II that AeZ decreased as SZ increased. Nor do we find any regular relation between SZ and "insoluble" in Schwalbe's data (l. c.).

It should also be noted that Schwalbe correctly pointed out that the insoluble part turns paper yellow and does not size it, but failed to observe that the free rosin of white size so highly prized by Wursterites contains this "insoluble" portion in large amounts.

Autoxidation of Rosin

The autoxidation of rosin has interested chemists for over half a century. Maly[46] in 1872 recorded an increase in weight of crystallized rosin acids when heated to 80 to 100 deg. cent. Twelve

years later Weger[47] observed an increase in weight of rosin when left in the open, and especially on warming. He found that American rosin gained 8.2 per cent, and on warming—11.7 per cent. Fahrion[48] found that both pure crystallized abietic acid and colophony increased in weight on exposure, the part of the rosin soluble in petroleum ether gaining 2.3 to 11.3 per cent. The oxidized compounds are no longer soluble in petroleum ether. Fahrion's view of the oxidation process was, that at first there was a destruction of one double bond in the molecule of abietic acid with the addition of a molecule of oxygen forming a peroxide, which later changed to dioxysylvic acid (he used the name sylvic for abietic). Labatut[49] has not only noticed the increase in weight of rosin, but he also determined the amount of oxygen consumed. According to him the oxidation is responsible for the darkening of the rosin. Similarly, Rauchenbach observed that both rosin and purified rosin acids absorbed oxygen and in increasing amounts at the higher temperatures.

As a result of the work of Fahrion, the insoluble part of rosin came to be considered as an oxidized portion. But rosin insoluble in petroleum ether is useless for sizing even according to Schwalbe.

In the photographs 3 and 4 are shown two samples of paper which were dipped in an alcoholic solution of rosin. Their rosin content is 27.3 per cent. One sample was kept in the dark, while the other was exposed to sunlight.

It is seen, that in spite of the enormous rosin content, the paper which has been exposed to sunlight has become entirely non-sized. It will also be noticed that the rosin has darkened. In the sizing of paper, the problem of autoxidation of rosin is of great importance. Schwalbe found that colophony which originally contained 5.88 per cent "insoluble," increased this to 14.3 per cent after 10 hours of exposure to sunlight, and to 23.6 per cent after 20 hours of exposure.

He also observed that similar changes take place on heating the colophony. Thus, the above sample of rosin gave:

After 18 hours at 100°.....14.1 per cent insoluble
After 18 hours at 105°.....16.9 per cent insoluble

Henriques[50] pointed out that the dark color of colophony is due to the insoluble part which is represented by the either number (AeZ). For the soluble part of rosin he found AeZ-43.61, 122 and 172, each result depending upon the conditions of saponification (hot saponification, or by Dieterich's procedure of allowing the rosin to remain in contact with an excess of n/2 or n/1 KOH for 16 hours). The relation between AeZ and "insoluble" was also pointed out by Fahrion.

It is the author's opinion that a better understanding of autoxidation of rosin may lead to a clarification of the whole sizing process and is, therefore worth studying.

When rosin is in the form of a powder, 20 hours of exposure to sunlight will, according to Schwalbe, oxidize a large part of it. On the other hand when the same rosin is in an immeasurably finer condition, namely, in a molecularly-thin layer, it will be preserved for many decades, if the molecular layer has been deposited on fibers.

What is responsible for the preservation of the rosin and what is the function of the oxygen of the air? Is the appearance of ether numbers really due to the formation of oxyacids, as Fahrion and others assert? They have not produced any experimental results to support their claims. To what extent is the energy of sunlight necessary, and which of the sun's rays must be present in order to bring about the rapid combination of rosin and oxygen? In order to clear up these questions the following experiments were made.

Light colored rosin in petroleum ether solution was exposed to sunlight during three summer months. Petroleum ether was chosen as the solvent, because, as we have seen, oxidized rosin is insoluble in it and, therefore, if any should be formed, it would drop out of solution.

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In order to determine the effect of oxygen, one experiment was performed with free access of the latter, while another was made in hermetically sealed tubes filled with carbonic acid before the solution was poured into them.

The solution used contained 20 per cent rosin and into each tube 100 grams rosin was placed. Two tubes were placed under a bell of green glass and two others under blue glass. Through one tube of each pair oxygen gas was continually bubbled. The flow of oxygen was kept uniform by means of special regulators. Besides these four tubes one open tube was exposed to sunlight without any light filters in order to observe the effect of the violet (and ultraviolet) rays. It was not possible to use violet filters on account of the absence of the right kind of glass; besides, if any difference from the other tubes shall have been observed, the violet and ultraviolet rays must be considered responsible.

Soon after the apparatus was set up and the oxygen was admitted, a white rosin-like deposit was observed on the walls of the cylinders and on the glass tubes introducing the oxygen, except that the precipitation did not appear at the same time. The following table shows the influence of the different rays of light.

	Deposit appeared		
	White light	Blue rays	Green rays
With the admission of oxygen.	On the same day	After 2 days	After 8 days
In an atmosphere of carbonic acid	.....	After 3 days	After 12 days

It was noted, that during the first few days the deposit formed at night dissolved again when the solutions were warmed up by the rays of the sun. Later the deposit increased and only part of it dissolved again. As I have already pointed out, the presence of abietic acids materially increases the solubility of these substances in petroleum ether, therefore, the following conclusions can be drawn:

Sunlight acts rapidly on rosin; the violet and blue rays show their effect immediately, the green rays more slowly.

The chemical changes in the rosin will take place also in the absence of oxygen; however, when it is present, the results of the reaction appear sooner and, as will be shown, proceeds more energetically and thoroughly.

In a former article I have shown how the different rays of the sun effect the sizing in paper. Having seen that the rays can be divided into two groups: violet, blue and yellow on one hand, and green and red on the other, we may suppose that a similar division will be observed here.

The precipitate of rosin which was white and wax-like at first, gradually assumed a brown shade, and constantly increased in all tubes until at the end of the experiment it formed a layer about one centimeter deep.

The precipitates, insoluble in petroleum ether, are soluble in methyl and ethyl alcohol, but hardly dissolve in sulphuric ether, which explains the reason for the failure of papers which have lost their sizing through exposure to sunlight to show the characteristic transparent ring on testing with a drop of ether.

At the end of the experiment the petroleum solution was poured off and the amount of rosin remaining in the solution, as well as that precipitated, were determined.

The substances found on evaporation and drying to constant weight were found to be 7.7 per cent and 9.5 per cent less than originally taken after the action of the blue and green rays, respectively.

All of this loss cannot be accounted for by the presence of terpenes and ether oils in the rosin. More than half of the loss must have been due to the reactions which have taken place as a result of exposure. On the other hand, where white light was admitted, i.e., in the presence of violet and ultra-violet rays, there was an increase of 8.1 per cent in the weight of the rosin.[51]

In the following table the results are expressed in percentages on the total weight found after the reaction.

	With access of oxygen			Without oxygen	
	Violet and ultra-violet %	Blue %	Green %	Blue %	Green %
Remaining in petroleum solution	10	19	35	33	37
Precipitated	90	81	65	67	63

The data of this table lead us to the following deductions:

About ⅔ of the compounds present in colophony undergo chemical changes even in the absence of oxygen.

The blue and green rays (and probably the red rays) act equally under these conditions.

The only effect of the presence of oxygen on the green rays is to increase the velocity of the reaction.

The effect of oxygen on the violet, ultraviolet and blue rays is to produce greater changes in the composition of the rosin.

However, the quantity of precipitate does not show the whole amount of changed rosin, because some of the latter must have remained in the petroleum solution on account of the mutual solubility of the rosin acids. It is also impossible to tell from the table whether the substances still remaining in the solution have not undergone a change through exposure to sunlight.

In order to clear up these questions, determinations of the constants of the dissolved and deposited portions of rosin were made.

	Oxygen excluded				
	In solution		In the precipitate		
Constants	Blue	Green	Blue	Green	The original rosin
SZ	159	156	155	152	167
KZ	180	168	186	184	172
AeZ	21	12	31	32	5

This table indicates that the ⅔ of the rosin which was deposited does not represent the total quantity affected, but that there was also some changed rosin in the solution, judging by the increase in AeZ of the dissolved part.

Therefore, the destructive action of sunlight on rosin is not limited to oxidation, but there takes place simultaneously a different reaction which forms compounds which are insoluble in petroleum ether and which have high ether numbers, i.e., possess those characteristics which various investigators have made use of in the study of autoxidation of rosin.

This reaction is accompanied not by an increase in weight, as was observed with the violet and ultraviolet rays, but on the contrary, with a decrease in the weight of rosin, which undoubtedly points to a partial decomposition of the molecule of rosin acid.

It is also interesting to observe that the precipitated portion is similar for both blue and green rays, but judging by the constants of the soluble portion, it still appears that the blue rays are the more active.

It is planned to experiment with pure abietic acid and pure green and violet light filters in order to throw some light on these photochemical reactions.

Changes in Hard Colophony

The preceding experiment showed the extreme sensitiveness of rosin in solution, i.e., when in the molecular state, to light, but the experiments of other investigators showed that the reaction is just as energetic when the rosin is in the form of a powder. It seemed worth while to determine whether any action will take place in the dark, and also when the rosin is in a coarse powder.

The same rosin which was used before was powdered and screened through a coarse screen which passed particles up to 3 mm. The powdering was done by a faint red light and the powder was placed in a hermetically sealed jar and was kept under conditions of absolute darkness.[53]

After 2 years a sample was taken out and the remainder was placed under the same conditions. Three years later the jar was opened again for a second sample, but this time an unexpected phenomenon was observed. The whole of the rosin represented a dark mass which ran together and occupied half of the jar. On removing the stopper there was a sharp odor of the lower organic acids—acetic, formic, perhaps propionic. The jar was at once covered and then there was carefully added a little water in order to absorb the gases and save them for analysis. The rosin proper was removed from the jar by flotation on water and was placed in a retort and acted upon by steam in order to extract any of the lower acids that might be present. The extracts were combined, purified by distillation and then passed through a solution of barium salts. In this form they are preserved for future investigation.

	Original rosin		Rosin kept for two years in powder form	
Constants	Before experim.	After two years	Soluble in petr. ether	Insoluble in petr. ether
SZ	167	162	161	173
KZ	172	216	174	231
AeZ	5	54	13	58

The table shows that a coarse rosin powder, though kept in the dark, forms substances insoluble in petroleum ether and possessing high ether numbers. After a longer period the reaction proceeds still farther, some of the side bonds are probably broken and the lower organic acids are formed.

The raising of the temperature to the melting point of rosin indicates that the process of decomposition is exothermal.

Under identical conditions with the powdered sample there was also kept a sample of rosin broken into larger particles, namely, about 3 mm. While the fine powder was found to have entirely decomposed, the coarse sample appeared to have suffered no change and gave approximately the same constants as the original rosin. After having been quickly washed with alcohol this sample gave exactly the same constants as the original rosin.

Evidently the size of the particles of rosin, i.e., the exposed surface is the determining factor for this reaction, especially since oxygen, even if it does not take part in forming new substances, acts as a catalyzer.

Having observed the fact that rosin decomposes far enough to form acetic and perhaps other lower acids, the author examined all the samples of rosin in his possession, including the lightest Spanish and French as well as medium American kinds, and found that all of them without exception undergo decomposition, but only on the surface. It must be due to this decomposition that a white powder is formed in vessels containing samples of rosin. The formation of these acids in any container with some rosin which has remained closed for a few months in diffused light, can be verified by means of test paper.

Another case of rosin decomposition was observed accidentally. A large jar of about 5 liters capacity which contained lumps of extracted stump rosin and which was kept on the author's laboratory table was noticed to have its inner walls covered with vapor. On opening the jar it was found that the temperature was high, the atmosphere was saturated with water vapor, and the rosin softened and went to the bottom of the jar.

The experiments and observations presented so far lead to the following conclusions:

Colophony when first obtained from resin is a mixture of unstable chemical compounds in a condition of unstable chemical equilibrium.

The change to a stable condition is accompanied by the formation of rosin acids insoluble in petroleum ether and possessing high ether numbers.

The velocity of this change is dependent upon the size of the rosin particles. In solution, where the rosin is in a molecular state, the change is extremely rapid; for a fine powder exposed to sunlight several hours are required, and as the size of the particles increases the required time is likewise increased.

All kinds of rosin, as seen from Table II. contain more or less of these stable compounds, which have completed their life cycle, and which are already useless for paper sizing. Only those compounds which still retain their chemical activity, i. e., those which have not lost their double bonds[53], are useful for sizing.

When making white size, we separate out a large part of these useless compounds, but not all of them. Some of these are saponified, while on the other hand, part of the active acids remain free

and give to the "free rosin" slight sizing properties. Experiments have shown that when these substances are obtained in purer condition they possess no sizing properties whatever. Filter papers sized with these filter as well as before sizing.

Rosin in Paper

Writing paper preserved for over 25 years was extracted with petroleum ether, and then with acidified alcohol (1 per cent H_2SO_4). The petroleum ether was driven off and the residue was dissolved in alcohol, leaving behind an insoluble portion (aluminum resinate). The alcohol extract was poured into water and the rosin which separated out was taken up in sulphuric ether. By this procedure we extracted and separated both the free and the combined rosin; besides, since the extraction was done with petroleum ether, that portion of the rosin which was "free" in the white size used in the sizing of the paper was not extracted, but went into the alcohol fraction together with the rosin which was separated from the aluminim salts by H_2SO_4.

Determinations of the constants of each part were made. For the free resin the following values were found:

	I	II	Average
SZ	131.3	131.1	131.3
KZ	147.1	147.5	147.3
AeZ	15.8	16.2	16.0

The combined rosin together with the free rosin of the white size gave the following values:

	I	II	Average
SZ	151.5	151.5	151.5
KZ	189.6	190.5	190.0
AeZ	38.1	39.0	38.5

The results of the tests were as follows:

Paper taken for analysis—44 grams.

	By petroleum ether	By alcohol	Total
Rosin extracted	0.7613	1.0208	1.7821
or in per cent	1.73%	2.32%	4.05%

		By petroleum ether	By alcohol	Total
Constants	SZ	131.3	151.5	.....
	KZ	147.3	190.0	.....
	AeZ	16.0	38.5	.....

A still older sample of paper taken from the writer's note book of student days gave the following results:

		By petroleum ether	By alcohol	Total
Rosin extracted		1.58%	2.24%	3.82%
Constants	SZ	142.5	158.3	.....
	KZ	160.7	199.9	.....
	AeZ	18.2	41.6	.....

The samples of filter paper referred to above and sized with combined rosin contained 0.9 per cent, 2.6 per cent and 3.0 per cent rosin. On the sample with 0.9 per cent rosin lines were drawn 1.5 mm. wide and ink drops of 2.5 and 3 mm. in diameter were made without passing through, except where the pen pulled the fibers apart. With 1.5 per cent rosin the sizing undoubtedly would have been just as good as with 2.6 per cent, where neither the lines nor the large drops (6 to 10 mm.) of ink showed through, what is seen in the photographs being due to the transparency of the paper. The sizing was done with a rosin solution, i.e., the question of precipitates as well as that of filling up of pores were entirely eliminated.

The sizing was due to the anticapillarity of the pores and was accomplished with one-third as much rosin as is normally used.

The volume of the pores of this paper is over 1,800 cc. per kilogram of paper, i.e., 1½ to 2 times greater than in ordinary writing papers. The average diameter of the pores is more than 5 microns, i.e., 10 times greater than the pores of writing papers. The anticapillarity of a pore is inversely proportional to the square of its diameter, consequently, with the same amount of rosin, the resistance of writing paper to the penetration of ink ought to be about 100 times as great as that of the samples; in other words, a good sizing can probably be obtained with considerably less than 0.9 per cent of the combined rosin of white size.

The samples sized with the free rosin of white size gave altogether different results (see photographs 2 and 2a). With 6.65 per cent rosin there is no sizing at all and with 9.33 per cent the sizing is insignificant.

Assuming the average diameter of cotton fibers to be 0.014 mm. (according to Wisner), the width of "look-through"—0.10 mm., the thickness of the walls—0.002 mm., sp. gr. of cotton cellulose—1.949 (per Grassi), then in one kg. of these fibers there will be 6.259 kilometers of total length of fibers and 466 square meters of total surface. Assuming that during the short beating of filter paper the surface increases only 4 or 5 times due to the splitting of the fibers, the final surface area of the beaten fibers will be about 2,000 sq. meters.

With 1 per cent of rosin and assuming uniform distribution on the surface of the fibers the layer would be

$$(\text{sp. gr. of rosin} = 1) = \frac{10}{2000.10000} = \frac{1}{2000000} = 0.5\ \mu\mu.$$

Having in mind that the size of the hydrogen molecule is 0.1 $\mu\mu$ of chloroform 0.8 $\mu\mu$ and of starch 5.0 $\mu\mu$ it is evident that even with 2 per cent, 3 per cent and 5 per cent of rosin, and especially when the stock is beaten for writing papers, the sizing process is indeed a chemical molecular process.

We have seen that even powdered rosin decomposes in the course of a few hours, while molecular rosin (in solution) breaks up before our very eyes and loses its sizing power. How do we explain then, that the molecular rosin in the demonstrated samples did not likewise decompose after 12 years with a consequent loss of sizing? We have seen that the rosin is preserved for decades on old writing papers and the sizing fastness is still there.

There can be only one explanation and that is, that the colophony, or in this case the abietic acids are no longer such. They have formed a new compound with the fibers, which is no more sensitive to the action of oxygen by diffused light; only by concentrated light with constantly surging violet waves is the compound broken up; the abietic acids are again set free and are then destroyed by the oxygen of the air.

It is this compound of fibers and rosin which is water-repellent, the pores of these fibers are anticapillary. The acids of high ether numbers also combine with the fibers, but the resulting compound is not waterproof and the pores remain capillary.

There will be many who will not agree with my conception of sizing and will declare that we are dealing with an absorption phenomenon. However, the name does not explain the phenomenon. It would be interesting to know what they conceive by this name.

The mechanical concepts, like Zustandaffinität of Biltz and Additionsvermögen of Verländer, are now entirely forgotten by the physico-chemists. Neither the modern theory of surface condensation, which is all the time encountering contradictions, nor Gibbs' electro-capillary theory, nor the theory of solid solution or diffusion column of Homfray u Zacharias can explain the loss of the characteristic properties of abietic acid when the latter is fixed on the fiber.

All of these theories find some support in singular cases of adsorption, but in the present case only a chemical molecular, even though only a weak combination, will explain the phenomenon.

The presence of ketone groups in the fibers, of double bonds in the molecule of abietic acids and of ether numbers which reappear on precipitation of the saponified acids in the free state, all these factors taken together call for a serious consideration of the chemical explanation of the sizing phenomenon.

In this article the reactions taking place in the beater were not considered. The sizing process was considered in its pure state without reference to the salts of the half-stuff or of the water, nor was the question of alum brought in; in other words, all those conditions which serve to obscure the sense and substance of the sizing

process were not brought in. For this reason no reference was made to the extremely interesting experiments of Sieber and of Stöckigt and Klinger, although some of Sieber's results confirm the views expressed in this article. The work of Heuser and of Neugebauer was brought up because these dealt directly with Wurster's principles, while Sieber has attacked the subject from a new angle.

The reactions taking place in the beater prepare the way for the basic reaction in its pure state. It is important to hydrolyze the soap and to deposit the rosin on the fibers, further the combination will be strengthened at the favorable temperature on the driers.

It was shown that on a paper with enormous pores and which has received only slight beating, 0.9 per cent of rosin is almost sufficient for sizing. The author is firmly convinced that he will shortly be able to show samples of writing paper sized with 0.4 to 0.5 per cent rosin. The enormous excess which is wasted at present is due to the fact, that precipitates which are now considered beneficial are really harmful.

Notes:

*Bumazhnaia Promyshlenost, II, No. 1, 59-77 (Jan.-Feb., 1923), and II, Nos. 2-3, 187-203 (March-June, 1923). Translated by M. L. Caust, B. S. The review part of this article has been somewhat abbreviated, the rest of the article is given in full.

[1] E. Kirchner. Das Papier IV Teil. s. 275. "Vereinigen sich die Harzteilchen . . . so verden die Kapillarräume verkleben und mit wasserabstossenden Hautchen uberziehen." P. Puget. La fabrikation du papier, p. 147. "Il faut remplier ces pores, c'est le but du collage" (1911).

Sadtler. Handbock of Techn. Organ. Chem. Russ. trans. 1904. "The object of sizing is to fill the pores in the paper with a substance which is not penetrated by water" (p. 408). Also, I. Shevliagin, the Testing of Paper, 1911, p. 74. M.. Kusnetzoff, Paper Making, p. 225, and Melnikoff, Course in Paper Making, 1905, p. 138.

[2] L. P. Zherebcff. The Theory and Practice of Paper Sizing. Moscow, 1900.

[3] W. Bl. 1906, No. 10.

[4] Wurster said that this salt is insoluble.

[5] W. Bl. 1906, No. 23.

[6] J. Ind. Eng. Chem. 1911, 3.

[7] Z. F. Agnew. Ch. 1912, 2,155.

[8] P. Z. 1913, No. 19, 20, 23.

[9] Pistsheb. Dielo (Russia) 1905, No. 6, 7, 8.

[10] W. Bl. 1911, No. 41.

[11] W. Bl. 1912, s. 1454.

[12] Ann. de chimie LXVIII c. 67, 1808.

[13] Ann. de chimie LXXII c. 79, 1809.

[14] Recherches physico-chimiques, II, c. 311, 1810.

[15] Ann. de chimie et phys. XIII, 342, 1820.

[16] Journ. de Pharm. VIII, 1882, c. 571.

[17] Tromsdorffs Journ. der Pharm. VIII, 1824, c. 21.

[18] Ann. de chimie et phys. XXXI, 1826, c. 108.

[19] Journ. de Pharm. XIII, 1827, c. 6.

[20] Essais chim. sur la therebenthine des sapins à cône redresse Strassb. 1830.

[21] Ann. de chimie et phys. 1837, T. 65, p. 325.

[22] Lieb. Annal. 1835, 13, s. 169.

[23] Zeitschr. fur die des, Naturwissensch. XIV. 1859, s. 311.

[24] Sitzungsber. d. K. Akad. d. Wiss, Wien, XLIV, 1861.

[25] Journ. f. prakt. Chimie. 1867, Cl. s. 235.

[26] Diss. Bern 1883.

[27] Bull. de la soc. chim. 1874, 21, 387.

[28] Ber. d. chem. Ges. 18. 1885, s. 3,331—19—1886. s. 2,167—20. 1887 s. 3248.

[29] Ber. d. D. Chem. Ges. 1905, c. 4,125—4,131.

[30] Ber. d. D. Chem. Ges. 1906, c. 3,043.

[31] Chem. Rev. uber die Fett u. Hazindustrie 1899, p. 106.

[32] Arch d. Pharm. 1900, p. 412.

[33] A. Tschirch. Harze und die Harzbehalter c. 648—670. 1906, Leipzig.

[34] Later Tschirch accepted the formula $C_{20}H_{30}O_2$, l. c. p. 670.

[35] Unfortunately, due to the transparency of the paper the lines are seen in the photograph, although the samples show that the ink did not penetrate to the other side.

[37] D. R. Max Erfurt No. 152,393 et al.

[38] Monatshefte f. Chemie VII. 1866, h. 655.

[39] Chem. News LVIII, S. 224.

[40] B. Studer—"Ueber das amerik. Kolophonium." Inaug. Dissert. Bern 1903,

[41] Monatshefte f. Chemie VII. S. 655—1886.

[42] Pharm. Post. 1886, S. 445.

[43] Wich. Bl. fur die Papier Fabrik. 1911, no. 44.

[44] Same as no. 35, but kept in the dark two years, in powder form.

[45] Z. f. Angew. Chemie 1896, S. 429.

[46] Lieb. Annal, 1872, 161.

[47] Chem. Revue 1898, H. 11 u. 12.

[48] Zeitschr. f. angew. Chem. 1901.

[49] Soc. des sciences phys. et natur. de Bordeau. 1903.

[50] Schwalbe und Kuderling. W. Bl. 1911, no. 44.

[51] Had the two double bonds of abietic acid been destroyed and had there been added two molecules of O, then the weight would have increased 21 per cent.

[52] The jar, wrapped in several sheets of paper and black cloth, was put into a cardboard box, which was placed into the drawer of a table in a dark room used for light analysis.

[53] P. Levy (Ber. d. D. ch. Ges. 1909, IV, 4305) showed that on oxidation of abietic acid in alkali solution by $KMnO_4$ there is formed tetrahydroxy-abietic acid $C_{20}H_{34}O_6$ where 4 hydroxyls take the place of two double bonds, which was in agreement with Fahrion's assumptions. Among the products of the reaction he found propicnic and isobutyric acids. As pointed out, my rosin similarly broke up with the formation of the lower fatty acids.

TAPPI Program at Paper Show

One of the most important programs of the Technical Association of the Pulp and Paper Industry during the convention of the association in Paper Week, will be held at the Paper Industries Exposition in the Grand Central Palace, the afternoon of Thursday, April 10. The close relationship between the exposition and the conventions of paper manufacturers being held during the week of April 7 is shown by this co-operation for the Thursday program. In addition, this afternoon is left open on the program of the American Paper and Pulp Association, so that the manufacturers who are in the city for convention week will have one definite period in which they can visit the exposition without interference with any of the convention sessions.

The Technical Association, known in the industry as Tappi, from its initials, will open its exposition program at 2 P. M. with an address by Phillips Dennett of the Bird Machine Company on "The Vickery Felt Conditioner." All of the addresses will be brief, making the afternoon program one full of interest and variety. Other speakers on the afternoon program, with their addresses will be:

H. A. Linch, the Dorr Company, "The Dorr White Water Save-All."

L. M. Booth, Booth Chemical Company, "White Water Economy."

R. H. Whitney, B. F. Goodrich Rubber Company, "Special Soft Rubber Press Rolls for Paper Machines."

George H. Spencer, S. K. F. Industries, "Ball and Roller Bearings and Their Effect on the Paper Industry."

Charles A. McKeand, Seaboard Air Line, "Paper Making Opportunities in the South."

W. W. Spratt, Westinghouse Electric & Manufacturing Company, "Electricity and the Paper Industry."

Karl O. Kunde, The Electric Tachometer Co., "Tachometers."

C. S. Hardy, William A. Hardy & Sons Co. (Title not given).

A. M. Goodloe, Midwest Air Filters, "The Latest Development in Air Cleaning Equipment and Methods for Testing its Efficiency."

A. E. Armstrong, Armstrong Machine Works, "Armstrong Steam Traps and Their Application to the Paper Industry: the Efficient Drainage of Paper Machine Dryers."

R. E. Wooley, General Electric Co., "Uses of Electric Flow Meters in the Pulp & Paper Mill."

Viggo Sahmel, F. L. Smidth & Co., "Short Center Belt Drives."

With the exposition still a fortnight distant, most of the available space has been taken. Several groups are to exhibit co-operatively, and not the least interesting will be a co-operative exhibit of the Leather Belting Exchange which will operate a demonstration machine to show how belts transmit power, and the relative values of different types of belting. In addition there will be an exhibition of a leather belt running in water, and of leather belts being made endless on the pulleys. This exhibit will be purely educational, as the exchange has nothing to sell, but will show in this manner the results of the work which has been done for several years at its research laboratory at Cornell University. The demonstrations will be from both the scientific and the practical standpoints.

The manner in which the paper industry is co-operating to make the Second Paper Industries Exposition a success is shown by the fact arrangements have been made to include those attending the exposition in the reduced railroad rate privileges extended to members of the paper industry attending the various conventions during Paper Week. To secure the reduced rate those coming to the convention should secure a certificate from the ticket agent on buying their tickets to New York, and these tickets will be certified in New York by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, a member of the Advisory Committee for the exposition. Those whose tickets are so certified will be able to purchase their return tickets for half the usual railroad fare.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, Chairman

Coating Materials and Fillers

Filling of Paper Stock. Friedrich Reichard. Ger. pat. 378,425. *Zellstoff U. Papier* 3,215-216 (Sept. 1923). To paper stock containing clay or other material, according to Ger. pat. 349,882, small amounts (0.3 to 0.8%, based on the dry pulp) of water glass and magnesium chloride are added. A superior retention of the clay by the stock is claimed owing to the formation of insoluble magnesium silicate.—J. L. P.

Iridescent Coating for Paper. H. J. Valentine and E. W. Simpson. Eng. pat. 202,835. The coating consists of a film formed by the spreading and evaporation of a solution composed of nitrocellulose or cellulose acetate, to which gums or resins may be added, dissolved in an alkyl ester of a fatty acid with or without the addition of acetone or alcohol. The paper to be coated is drawn upwards through the solution on which the film floats, so that the film adheres to the paper.—A. P.-C.

Comparative Tests of Domestic (U. S.) and English China Clays from a Papermaking Standpoint. Edwin Sutermeister. *Paper Ind.* 5, 1391-1394 (Dec. 1923). Eleven domestic (mostly from South Carolina and Georgia) and three English clays were tested. The domestic contained slightly more coarse material (held on a 300 mesh screen) than the English clays, but it was not of an abrasive nature. The U. S. clays contained a higher proportion of very fine material (taking over 2 hrs. to settle 2 in.). Their color (determined without colorimeter) makes them suitable as low or medium grade fillers. The loss on ignition was remarkably constant, averaging 13.36% for domestic and 12.10% for English clays after drying at 105° C. Retention was very uniform (31.1 to 33.9%), and seems unaffected by fineness. Fineness seems to have great influence on the sizing, the ink resistance decreasing as the fineness increases. The amount of casein required per 100 parts of clay to give a suitable paper coating composition increased greatly with the fineness of the clay; and the finest domestic clay gave such a thick mixture that it could not be applied with the usual types of coating machines without further dilution.—A. P.-C.

Paper Testing

Determining the Porosity of Paper. V. Ravizza. *Industria Della Carta; Papeterie* 45, 900-904 (Sept. 25, 1923). A description of the Sindall, Wikler, Gurley de Troy, and British Electro-Technical Association types of porosity testers.—A. P.-C.

A Measure of the Color Characteristics of White Paper. R. E. Lofton. *Paper Trade J.* 77, No. 18, 51 (Nov. 1, 1923). Work at the Bureau of Standards showed that in the measurement of the departure from true white of a paper by using a single reflection of white light from the paper (as is done in grading or matching papers for color by the unaided eye) the departure of the color of the paper from true white was usually less than the error made in setting the scale of the colorimeter. A colorimeter was then used in which two beams of light from a common source are compared, one beam having been reflected 3 or 4 times from the surface of the paper and the other coming from the source unchanged. The paper was tested for brightness or reflecting power for three colors: red, green and blue. Of the 21 papers tested all were more or less deficient in the proportion of blue light reflected, and to a smaller degree in the proportion of green. They were also matched for color by the unaided eye observation by 17 individual observers experienced in color work; but there was practically no agreement among the observers as to the "whiteness" of the various papers.—A. P.-C.

Analysis of Rubber Latex Paper. F. Kaye. *India Rubber World* 68, 709 (1923). Exception is taken to the results of Shaw and Carson which indicate that oxidation of the rubber in latex paper occurs in a few weeks or months, depending upon the type of paper. The method of analysis used by Shaw and Carson, which involves undue time of extraction, probably causes decomposition of the rubber to acetone soluble compounds, a reaction which becomes more pronounced as the paper becomes drier. Physical examination of latex paper, both new and many months old, has revealed no deterioration and without chemical examination it is inferred that oxidation of the rubber has not occurred.—C. J. W.

Miscellaneous

Paper Marbling Process. *Paper Mill* 47, No. 49, 10 (Dec. 8, 1923). A brief description of the method of marbling paper by hand.—A. P.-C.

New Uses of Paper. W. B. Bullock. *Paper Mill* 47, No. 51, 18, 20 (Dec. 22, 1923); *Paper* 33, No. 10, 22-23 (Dec. 27, 1923). A brief outline of some of the newer and less thought of uses of paper and of pulp.—A. P.-C.

Water Conditions for Papermaking. L. M. Booth. *Paper* 33, No. 5, 5 (Nov. 22, 1923). Brief general discussion of the necessity of using pure water for paper manufacture, which can be obtained from a naturally pure source or by treating an unsuitable water. The hardest problem is treatment of industrial wastes from other industries discharging upstream of the paper mill in its water supply.—A. P.-C.

Causes of Waste in the Paper Mill. E. Arnould. *Papier* 26, 1197-1200 (Oct., 1923). A general discussion, more particularly emphasizing the importance of controlling supplies purchased.—A. P.-C.

Standardizing Paper Quality. Hubb Bell and H. M. Holmes. *Paper* 33, No. 6, 3-7 (Nov. 29, 1923). A discussion of the standardizing of raw materials and of processes in the manufacture of paper, showing their benefits for the consumer.—A. P.-C.

Stencil for Reproducing Devices. Greif-Werke, Deutsche Buro Bedarfsgesellschaft Bruer & Co. Ger. pat. 375,072. *Wochbl. Papierfabr.* 54, 2647 (Sept. 29, 1923). The silk paper, coated on one side with a wax layer, is treated with a thin varnish, shellac or collodion paint.—J. L. P.

World Paper Industry. Georg Freitag. *Technik U. Wirtschaft* No. 9 (1923); *Zellstoff U. Papier* 3, 239-242 (Nov., 1923). Largely statistics on world production.—J. L. P.

Abstracts of the Pulp and Paper Literature. Willy Grunewald. *Zellstoff U. Papier* 3, 244-248 (Nov., 1923). Brief abstracts of articles appearing for the most part in German journals for the period Apr. 1 to July 1, 1923.—J. L. P.

Production of Metallic Paper. Ernst Oeser. Ger. pat. 381,703. *Papierfabr.* 21, 483 (Nov. 4, 1923). A polished base, as glass, is coated with varnish and then is covered with bronze powder in a thin layer. After drying, the thin sheet is pasted on paper.—J. L. P.

Standard Papers 1913-1922. W. Herzberg. *Papierfabr.* 21, 479 (Nov. 4, 1923). A statistical summary concerning German paper for the period 1913-1922, based on tests carried out at the bureau in Berlin-Dahlem.—J. L. P.

Manufacture of Glazed Cardboard. Jakob Janser. Ger. pat. 381,633. Mar. 10, 1922. *Zellstoff U. Papier* 3, 253-254 (Nov., 1923). A new process for making glazed cardboard is described in which hydraulic pressure is not employed. The cardboard is especially resistant to water and does not swell.—J. L. P.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

THE ARGUMENT IN FAVOR OF DEPRECIATION ON REPLACEMENT VALUES*

N. D. FARMER, COMPTROLLER, THE CARBORUNDUM CO., NIAGARA FALLS, N. Y.

The Board of Directors of the N. A. C. A. requested Mr. Farmer to present the arguments in favor of replacement values. In reviewing this subject, Mr. Farmer found many viewpoints of interest to cost accountants. He does not wish this paper to be interpreted as committing himself to the adoption of replacement values in all cases, feeling that such a procedure is not usually warranted.

It was not so very long ago that a man who advocated depreciation as an element of expense was considered a theorist. Gradually opinion changed, resulting at first in depreciation being charged in profitable years and passed by in lean years. It later became apparent that if an industrial concern continued to operate, depreciation must be a constant factor, and therefore was a legitimate charge which a business must carry. This viewpoint was emphasized when depreciation was allowed as a deduction for income tax purposes. Today no one questions the advisability of providing for depreciation.

However, it is an estimate at best. Who will say what is a proper rate of depreciation to use for a modern steel and concrete factory building? Such buildings have not been built long enough for us to know the true rate. Ask a group of accountants to fix a rate for a given asset and you may get as man different answers as the number asked. Further evidence of the lack of needed knowledge is shown by some of the questions submitted to our Association and in turn to the membership for reply.

A Question Worthy of Thought

The question which we are to discuss, the computing of depreciation on replacement values, may inject another element into a question which may be none too clear. It is a question that is worthy of thought, however, and one which cannot be dismissed by a snap of the fingers. I think I am correct in saying that the subject was first discussed in our Association at a meeting of the New York Chapter and that it aroused much interest, which was carried further in our Bulletin Service.

Many will hold up their hands at the mention of "Replacement Values," shouting "Appreciation! Appreciation! Unearned surplus! Books must record facts," and sundry similar exclamations, but, facing facts, what is the value that a going concern placed upon its possessions as compared with others, independently of any intent to sell? It is the replacement or reproductive value. Replacement values are often used in reorganizations and consolidations. Replacement values are a material factor in the sale of a going concern.

When municipal taxes are assessed, the tendency is to develop valuations that represent replacement. The payment of such a tax is never questioned, although replacement values are really the basis of computation. When insurance is carried and a fire loss sustained, a settlement is expected to replace that which was destroyed. Replacement value again. Experience has taught that book values are usually not the correct values. Expression must be given, all accountants insist, to fluctuations in inventory values, as witnessed by the familiar phrase, "Cost or market, whichever is lower." And while it will be admitted that it is easier to value inventories than fixed assets, that difficulty is not the all-determining factor against it. An appraisal based on replacement values is common.

An Important Decision

Perhaps the highest recognition of replacement values is the decision of the Supreme Court of the United States in the case of Southwestern Bell Telephone Company[1]. Here replacement values are considered a correct basis for rate-making purposes. Further uses of replacement values might be suggested. Those cited are merely an attempt to show that replacement values are used for many purposes.

There are many fallacious ideas held in high places concerning the subject of depreciation. Take this statement appearing recently in a widely read financial publication: ". . . The amount of the reserve in respect to the value of the company's plant is not important since reserves set aside and expenditures charged those reserves will tend to balance over a period of years."[2] "Will tend to balance" does not mean will balance.

In the case of a monopoly, or semi-monopoly, resulting in large earnings, the actual amount of depreciation may not be a very vital factor. If net profit, on the other hand, is barely enough to cover bond interest and dividends, this subject is of more than passing interest.

What is to be gained by charging depreciation? The answer is, to insure the continued productive capacity of a going business. It goes a step beyond protecting the capital investment based on cost.

* From National Association of Cost Accountants' Year Book, 1923.

[1] The State of Missouri ex rel., Southwestern Bell Telephone Company, plaintiff in error, vs. Public Service Commission of Missouri, No. 158, October term, 1922.

[2] Barrons, August 6, 1923.

The point I wish to emphasize is that depreciation is designed to insure the continuance of this productive capacity. It is not the dollars of cost that are to be protected through depreciation as much as it is the function of production to be carried on through the use of plant and equipment.

When dollars are used to purchase the tools of production, such as buildings, machinery and equipment, a change in value occurs almost immediately, due to economic conditions. A variable base factor has entered our industrial life. Such being the case, let us consider the trend of prices for a moment. In a booklet published in 1921 by The Cleveland Trust Company, entitled, "Price Changes and Business Prospects," there is a diagram covering wholesale prices from 1810 to 1920. There are three abrupt rises in prices, due to the war of 1812, Civil War and World War. The chart shows that peak prive levels were practically the same during the three wars referred to, and that practically continuous declines followed the first two wars for about thirty years. Some of the downward trends were brought about by financial panics. In all this period of 110 years, prices have never been on a level plain.

A Supreme Court Decision

The following statement appears in a decision of the Supreme Court of the United States:

"Prices rose steadily (with but slight and short recessions) for the twenty years before the United States entered the World War. From the low level of 1897 they rose 21 per cent to 1900; then rose further (with minor fluctuations, representing times of good business or bad) and reached in 1914 a point of 50 per cent above the 1897 level. Then the great rise incident to the World War set in."[3]

Thus fluctuation is well shown in table of percentages given below, assuming 1913 as 100.[4]

SUMMARY OF PRICE FLUCTUATION
(17 Large Cities in 6 Sections of United States)

1913—100% Date	Labor (Average Union)	Brick (Common, Delivered)	Lumber (F.O.B. Mill)	Str. Steel (F.O.B. Pittsburgh)
1913	100	100	100	100
1914	103	101.3	84	76.7
1915, 1st Half	104	101.3	77	76.7
1915, 2nd Half	104.5	103.4	87	96.8
1916, 1st Half	105.9	109.5	107	156
1916, 2nd Half	108.2	115.4	104	173
1917, 1st Half	113.7	134	133	247.5
1917, 2nd Half	117.5	144.3	161	242
1918, 1st Half	125.6	164.5	177	200
1918, 2nd Half	135	188.2	179	199
1919, 1st Half	147.4	201.2	185	174
1919, 2nd Half	158	217.4	268	163.5
1920, 1st Quarter	174.4	265	367	185
1920, 2nd Quarter	190	288.6	377	210
1920, 3rd Quarter	195.8	289	294	207
1920, 4th Quarter	199	272/279	240	187
1921, 1st Quarter	195	240.5	180	151
1921, 2nd Quarter	185.8	219.3	152	143
1921, 3rd Quarter	171.6	202	142	117
1921, 4th Quarter	171.6	198	165	102
1922, 1st Quarter	161	193	169	96
1922, 2nd Quarter	161.2	194	170	100
1922, 3rd Quarter	167.7	203	191	125
1922, 4th Quarter	166.5	204	206	133
1923, 1st Quarter	167	214	239	142
March	175	217	254	166
August	190	217	234	166

MACHINE SHOP MACHINERY

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	7/23
Shapers	100	101	110	139	184	227	230	295	245	218	238
Drills	100	99	100	112	151	179	202	259	258	233	231
Grinders, universal and plain	100	100	104	126	161	193	221	230	192	158	177
Millers	100	100	105	125	160	183	183	205	186	162	190
Lathes	100	100	109	163	212	235	235	266	235	203	210
Planers	100	109	110	132	186	255	254	302	269	230	255
Radial drills	100	100	108	139	206	242	244	281	255	230	235
Boring and turning mills	100	100	109	140	212	273	270	284	262	230	203
Screw machines	100	100	105	123	153	176	180	190	176	152	175
Band saws	100	100	100	111	136	184	197	276	253	241	247
Surface, planers, matchers, moulders	100	100	100	110	137	171	185	232	210	204	215
Jointers	100	100	100	111	135	178	203	272	265	255	260
Shapers	100	100	100	112	145	178	196	290	250	231	241
Borers, mortisers	100	100	100	111	132	177	196	254	250	241	244
Saw tables, cut-off saws, swing saws	100	100	100	110	132	176	205	270	265	260	265

[3] Supreme Court Decision 158, October, 1922, term.

[4] Figures from the American Appraisal Company.

These price variations, I am sure, will suggest the fallacy of expecting to provide for renewal of plant in times of rising prices if depreciation is based on cost. Bear in mind, also, that our greatest industrial activity has always occurred in periods of rising prices. If a plant which has been built for many years has to be abandoned for one cause or another, it is not impossible that reserves will be found inadequate. Some time ago Prof. Irving Fisher said, "We are in a new price era." Time seems to have borne out his idea. It is to be doubted if many values, as expressed in terms of dollars, will ever reach the low levels of 1913 and prior to that date. The theory of replacement values recognizes these price variances, and gives expression to them.

An Illustration of Price Costs

To illustrate the effect of price trends on costs, take for example a plant erected in 1913 at a cost of $100,000.00 duplicated in 1920 at a cost of $200,000.00. For another illustration, assume a machine purchased in 1914 for $1,000.00, was duplicated in 1919 for $2,500.00. Basing depreciation on cost will result in units made in new plant carrying twice as much depreciation as if made in old plant—if made on new machine, two and one-half times as much depreciation as on old machine; and will at once detroy the greatest factor in all cost work—that of comparability. Thus, a company having several plants erected at various times but all engaged in one kind of production, cannot get real comparative costs as far as depreciation is concerned. In the case of buildings or equipment being acquired at substantially less than original cost, due to forced sale or other circumstances, it will be apparent if depreciation is calculated on actual cost values, that reserves will be adequate against the day when plant must be renewed.

In order to get a proper charge for depreciation, you will agree that the base on which it is to be computed must be uniform. It has been shown, and proven, that a so-called cost basis if never uniform—that changes due to price trends commence immediately upon the acquisition of a given asset.

There is only one way in which a depreciation charge can be obtained that will give expression to the current business cycle, that will result in true comparability where assets are acquired at different times, that will give comparable costs as far as depreciation is concerned, and that is to have asset values based on replacement or reproductive cost. In order to do this, the first essential is a complete asset record. It is surprising how few organizations have such a record. It involves a detailed listing of all property, and a thorough study of data usually long since considered "dead." A department may be organized to develop values after the initial work has been done, or an outside organization may be retained to carry on the work.

Assuming replacement values are available and that depreciation rates have been adopted, the first question concerns the treatment of the depreciation charge. In this case I find two conflicting viewpoints. The first is that the entire amount of depreciation based on replacement values is a charge to operations. This would mean, in periods of rising prices, that current costs would be burdened with an element representing probable renewal of plant at a higher contract figure, which would naturally be objected to on the part of the factory management. Inventory values would be inflated.

The Second View Point

The second viewpoint and perhaps the more common is that the portion of depreciation based on acquisition cost of assets is a legitimate charge to operations, but the balance—the difference between depreciation on cost and depreciation on replacement values—is a charge to surplus, if replacement values are higher than cost values. This would bring on the books a reserve for renewals which would be a portion of surplus set aside and available in the future for ultimate renewal of plant. This second method appeals to me as the best. It will not inflate inventories. It can be readily

handled by the cost accountant, who may compile his cost schedules in the usual manner, supplementing the schedules by the additional element of depreciation on the appreciated portion, if he so desires.

It will be observed that the speaker has not made any attempt to cover every argument for or against the adoption of replacement values for purposes of depreciation. This has been done deliberately with the idea that a paper of this sort is intended only for one purpose, that of starting a discussion.

To-day it may not be expedient in your organization to adopt replacement values as a basis for depreciation. Time has often proven, however, what is inexpedient today may be expedient tomorrow.[8]

Discussion

ARTHUR T. CAMERON, Edward P. Moxey Company, Philadelphia, Pa.: The last speaker took the opportunity of availing himself of a decision of the Supreme Court in the Southwestern Bell Telephone case. He made it apparent that the rates were to be charged on the basis of replacement values, but he did not make clear the fact that they were going to take depreciation on their records on replacement values. It seems to me that his definition of depreciation is unique in many respects. I think as cost accountants we have rather carefully adhered to a definition which would embrace somewhat the thought that depreciation was the shrinkage in value of an asset due to its use. I am not including obsolescence, because I believe that is something which no man can forsee. I will grant that it is not possible to estimate depreciation accurately, but it is certainly more closely in line than any attempt to guess the value of today against that of two years to come, in comparison with what we had one year past.

I cannot help but feel that the whole subject of replacement is something which has to do with capital. If I buy a machine to-day which costs me about $2,500, and five years from now must replace that machine at a cost of $40,000, then with proper depreciation accounting the reserve for depreciation plus residual value will give exactly the original value of $2,500. Under the replacement scheme there can be no enduring basis for the depreciation charge; a machine that costs $2,500 to-day can be replaced next year for $2,000, and two years from now will cost $3,000. The man who adopts replacement value as a basis for computing depreciation will be in the position of Jonah as related in the 44th chapter of Deuteronomy and the 14th verse, where he said to the whale, "If you had kept your mouth shut, I would not have been in this trouble."

MARTIN KORTJOHN, New York City: The question of replacement value presents difficulties of which we are probably not aware, because it must be based on some sort of estimate. Mr. Farmer has suggested that we can take the estimate perhaps of an appraisal company if our own estimate does not suit our purpose; but in any event we must use estimates, and estimates are the things drawn from the imagination. Can you conceive of a plant constructed, say ten years ago, and an optimistic executive at work estimating the value of that plant; there is no telling just where he would stop. Yet some would calculate depreciation on such an uncertain basis. The cost of depreciation in most lines of industry is probably only a pure estimate, and you cannot ascertain it to the last cent. In order to get depreciation in at an increased fictitious value, some would distort the entire records and put on the books figures which have nothing to back them up except the optimism or the varying degrees of optimism possessed by the appraiser. I think this is about the expression of opinion as held by most accountants.

As for argument brought forth as to judges' decisions, let us remember that judges are lawyers. If any of you, as accountants, have dealt with lawyers, you probably have found some gross incongruities in their arguments. On accounting subjects, therefore, do not rely too strongly on the decisions of judges. Judges are not authorities on accounting subjects. Some day I suppose our decisions, as far as they affect accounting, will be based on the statements of accounting authorities, but so far we have not made ourselves heard in that direction.

THOMAS J. BURKE, Cost Association of the Paper Industry, New York City: I agree with Mr. Jensen. I think he read a very fine paper. As regards Mr. Farmer, one question was as to the value which a going concern should place on its assets. I would answer that question by saying, that the only value the going concern can place on its assets is cost less depreciation.

Mr. Farmer said that if a machine was destroyed, the insured would tell an insurance company to replace that machine irrespective of the price. I maintain that the insurance company would replace that machine only up to the amount for which it was insured; the amount of insurance carried on that machine would represent the amount the insurance company would pay for its destruction.

In regard to similar machines at different values, say one at $1,000 in 1913 and another at $3,000 in 1920, it seems to me that it is only fair for the cost of making products on the higher priced machine to be higher than the cost on the lower priced machine. The cost of production would naturally be higher on the $3,000 machine; but the point should not be forgotten that if the company can afford to pay $3,000 for another machine and see a profit in so doing, it must be making a higher profit on its older machine. However, there is no reason why, because the new machine cost more, the company should maintain that the older machine is worth more than they paid for it.

FRANK S. HATCH, Moore Drop Forging Company, Springfield, Mass.: The previous speaker has just said that the insurance company would repay on the basis of values insured, but he did not tell us on what values he would insure. On our two plants we would insure on the basis of "insurable" replacement values made by independent appraisal companies whose work is acceptable to the insurance companies.

Let us assume that you are retained by the average plant to install a cost system. You may find that some books have been operated for a long time without any knowledge of cost accounting on the part of those who have kept them. You secure an appraisal, set up the replacement values and depreciation reserves, and start in to figure your depreciation for cost accounting purposes on these replacement values. Later, you ask one of the officers on what basis depreciation is figures, and he will probably say on cost; but if he would think back he would remember that the whole system was started by setting up everything at replacement values on a certain date and subsequent purchases carried at cost have been only a fraction of that appraisal total.

At the end of the war we bought for a lump sum a second drop forging plant. We found equipment of all kinds and ages and in all degrees of neglect. How were we going to start our cost accounting? If we took the lump sum we paid for this plant and apportioned it on some basis over the individual units, we would have all that equipment at a very much lower value than in our old plant. The fixed charges and the burden rates, therefore, would have been lower than in our old plant and it would appear that we could make forgings more cheaply in plant number two than in plant number one.

We can interchange work in two plants. The sales department takes an order for forgings and we can schedule it for either plant. If we figured depreciation and costs on actual cost of plants and equipment, we would have the sales department taking orders at low prices and insisting that the work be done in plant number two so that they could show a margin of profit.

I believe, therefore, that depreciation for COST ACCOUNTING PURPOSES should be based on replacement values rather than actual cost values.

MR. FARMER: I have been a factory superintendent; and if I were a factory superintendent today, I would always see that the product

[8] The ideas presented in this paper have been derived from many sources. To F. A. Vockrodt, of the Carborundum Company; Niagara Falls, N. Y.; W. A. Sleeper, of Howell, Field & Goddard, Inc., Long Island City, N. Y.; L. H. Olson, and F. W. Jackson, of the American Appraisal Company, Milwaukee, Wis., and many others, acknowledgment is made of help received.

was made on a thousand dollar machine instead of a three thousand dollar machine.

MR. JENSEN: You have a Supreme Court decision that you can fix selling prices, not depreciation, on the basis of replacement value. If you build a plant now, I wonder how the utility will be affected when it comes to set its rates ten or fifteen years from now if we do have, as is possible, a gradually falling market. This is a consideration that will show up later much more importantly than now. I still feel that, although a company can set its selling price on the basis of replacement value, that does not mean that it necessarily has to tie up part of its profit in its depreciation account. It can depreciate on the basis of cost and have a higher profit.

Mr. Farmer spoke of a "guesstimate"; I think that is a good word, but I cannot understand why he wants two "guesstimates" instead of one.

CHAIRMAN SCOVELL: Now the suggestion is that we take a vote. I am going to state two propositions, and let you rise in support of them. One is for those who, if they had the responsibility, would today depreciate on a cost basis; and the other is for those who would, if the responsibility were in their hands, depreciate on a replacement basis.

MR. CAMERON: Will you clarify the situation by asking for the vote of those who have figures already available for computing depreciation on a cost basis, and those who must go in and make an appraisal of a plant in order to get the values to start? I personally should be willing to rise in approval of the securing of an appraisal to start from; but as far as variations up and down every year are concerned, I will stay seated.

CHAIRMAN SCOVELL: The gentlemen must realize that if they are going to adopt one plan or the other, they must take such account as they can of difficulties and assert that they are going to make a determined effort to use that plan with all its drawbacks. Mr. Hatch has just pointed out, on the one hand, the difficulties of getting cost, and, on the other hand, the difficulties of getting replacements.

Now I should like to see those stand on their feet who would depreciate on a cost basis. (Nearly all rose.)

Now I should like to see the small band of courageous souls who would, if they had the responsibility, depreciate on a replacement basis. (A few rose.)

Bureau of Standards on Paper Sizes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 26, 1924.—"The Bureau of Standards has not changed its attitude as respects simplification of paper sizes," said Dr. George K. Burgess, Director of the Bureau of Standards, Department of Commerce, in discussing the paper simplification program of the department, and with particular regard to the meeting which was recently held at the Simplified Practice Division of the Department in which it was intimated that B. W. Scribner, chief of the paper laboratory of the bureau would not endorse the simplification program.

"The attitude of the Bureau of Standards" towards the paper simplification program is somewhat misunderstood," says Dr. Burgess and he continues:

"It was definitely brought to the attention of the representatives of the paper industry who attended the simplification conference at the Bureau on June 19, 1923, that while it was interested in bringing about simplification of paper sizes according to reports which its committee presented and would lend its assistance to this work in every way possible the policy to be adopted and the manner and extent to which such a simplification could be carried out would be a matter for the industry, itself, to determine." In taking up the matter of the recent meeting Dr. Burgess continues:

"During the discussion of the matter of approval of definite paper sizes by the Bureau of Standards, it was stated by B. W. Scribner, representing the Bureau, that the approval of the sizes suggested by the Bureau's committee was a matter for the paper industry, itself, to carry into effect and it was without the province of the Bureau to do other than suggest that certain sizes be adopted by the industry. The attitude of the Bureau of Standards has in no way been influenced by the attitude of other government departments but is simply in line with its general policy in such industrial relations."

It is understood that the paper simplification work of the department will now go ahead under the direction of the Simplified Practice Division of the Department of Commerce.

Improvements at Glatfelter Company Mills

SPRING GREVE, Pa., March 24, 1924.—Work has been nearly completed on the installation of motors in the beater room of the P. H. Glatfelter Company. The triple-expansion Fitchburg engine which has been in continuous service since 1887 will no longer be used. The beaters will be driven by motors, transmitting power by means of Lennix drives. Three new Jones Jordan engines have been installed.

Eight new dryers have been added to the 100-inch paper machine which has resulted in increased production.

In February a new 1,000 h.p. Edgemoor boiler was put into service. The boiler is equipped with Taylor stokers and Sturtevant economizer, the draft being induced.

A new 84-inch cutter has been added to the finishing department.

All five machines are now equipped with Bird screens, the smallest machine having just been furnished with a Bird screen and suction roll.

Chatfield & Woods Hold Paper Exhibition

PITTSBURGH, Pa., March 27, 1924.—The Chatfield & Woods Company held an exhibit of fine paper and printing at its office, March 13, at which the firm had the pleasure of receiving about 300 guests.

The program started at 11:30 o'clock. After the introductory remarks made by F. Forchheimer, general manager, the speakers were introduced and the following subjects were very ably handled:

"Selling Sales With Direct Advertising," by C. F. Norton, advertising manager of Strathmore Paper Company; "The Use of Color," by C. W. Dearden, sales promotion manager of the Strathmore Paper Company; and "The Human Equation in Business," by Alexander Dunbar, vice-president of The Bank of Pittsburgh.

The program covered a period of much interest and after its conclusion a very delicious lunch was served. The specimens of paper and printing were well received and the guests expressed themselves well repaid for the time spent.

American Waste Paper Co. Damaged by Fire

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 25, 1924.—Hundreds of bales of waste paper collected from the various government departments were destroyed here last week by fire in the warehouse of the American Waste Paper Company.

The estimated loss of the fire was between $50,000 and $60,000 of which the paper was valued at approximately $25,000. Part of the loss is covered by insurance. Four alarms calling out about 30 pieces of apparatus were turned in.

Allied Salesmen Association Formed

At a gathering, which was held at the Hotel McAlpin on Wednesday, March 19, 1924, an organization was formed, consisting of the Greater New York salesmen, who are selling paper, paper bags and allied lines. This organization will be known as the Allied Salesmen Association.

The officers are as follows: President, Edward Landers, Federal Match Corporation; treasurer, Ben Kohn, Continental Paper and Bag Mills Corporation; secretary, Samuel Hoffman, Schorsch & Co.

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Established 1885

HOLYOKE, MASS.

Electrical Specialists

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 22, 1924

SUMMARY

News print .....512 rolls
Printing paper .....162 cs., 313 rolls, 32 bls.
Hangings .....129 bls., 59 cs.
Wall paper.....34 cs., 71 bls.
Filter paper .....5 cs.
Wrapping paper.....53 bls., 24 rolls, 20 cs.
Kraft paper.....455 rolls, 229 bls.
Cigarette paper.....2,450 cs.
Tissue paper.....19 cs.
Surface-coated paper.....196 cs.
Colored paper.....72 cs.
Writing paper.....45 cs.
Tinfoil paper.....21 cs.
Copy paper.....32 cs.
Coated paper.....24 cs.
Basic paper.....6 cs.
Sand paper.....15 bls.
Transfer paper.....4 cs.
Miscellaneous paper.....223 cs., 5 bls., 98 rolls

CIGARETTE PAPER

P. J. Schweitzer, Rochambeau, Havre, 26 cs.
The Surbrug Co., by same, 17 cs.
R. J. Reynolds Tobacco Co., Olen, St. Nazaire, 1,060 cs.
De Manduit Paper Corp., by same, 339 cs.
American Tobacco Co., Olen, Bordeaux, 800 cs.
F. P. Gaskell & Co., Liberty, Havre, 38 cs.
Rose & Frank, by same, 170 cs.

WALL PAPER

A. C. Dodman, Jr., Inc., Mississippi, London, 5 cs.
R. F. Downing & Co., by same, 28 bls.
F. J. Emmerich, Colonian, Liverpool, 21 bls.
National City Bank, Pr. Roosevelt, Bremen, 5 bls.
A. C. Dodman, Jr., Inc., Rochambeau, Havre, 7 cs.
W. H. S. Lloyd & Co., Pr. Van Buren, London, 8 bls.
W. H. S. Lloyd & Co., Vellania, London, 9 bls.
W. H. S. Lloyd & Co., by same, 22 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Mississippi, London, 59 cs.
W. H. S. Lloyd & Co., by same, 127 bls.
A. C. Dodman, Jr., Inc., Ansonia, Liverpool, 2 bls.

TINFOIL PAPER

Enoch Morgan Sons, Ansonia, Liverpool, 21 cs.

PRINTING PAPER

B. F. Drakenfeld & Co., Ansonia, Liverpool, 19 cs.
Martin Bechtold, Hannover, Bremen, 20 cs.
Steiner Paper Co., Mt. Carroll, Hamburg, 76 rolls.
J. H. Scott Paper Co., by same, 110 rolls.
P. C. Zuhlke, Mongolia, Antwerp, 10 cs.
Miller & Wright Paper Co., Blydendyk, Rotterdam, 4 cs.
Perkins, Goodwin & Co., by same, 109 cs.
W. Hartman & Co., A. Ballin, Hamburg, 127 rolls.
W. Hartman & Co., by same, 32 bls.

KRAFT PAPER

Traders Paper Co., Andania, Hamburg, 229 bls.
Traders Paper Co., by same, 455 rolls.

NEWS PRINT

M. Gottesman & Co., Inc., Bremen, Bremen, 512 rolls.

COPY PAPER

H. Saki, Tatsumo Maru, Kobe, 8 cs.
R. F. Downing & Co., Havre Maru, Kobe, 24 cs.

TISSUE PAPER

Iwai & Co., Havre Maru, Kobe, 2 cs.
H. Reeve Angel & Co., Inc., by same, 2 cs.
Brooks Paper Co., Colonian, Liverpool, 7 cs.
G. W. Sheldon & Co., by same, 8 cs.

WRITING PAPER

Marcus Ward, Inc., Columbia, Glasgow, 6 cs.
Japan Paper Co., Rochambeau, Havre, 14 cs.
Gimbout Freres, by same, 15 cs.
Erstein & Co., by same, 10 cs.

COATED PAPER

Globe Shipping Co., Hannover, Bremen, 80 cs.
Globe Shipping Co., Bremen, Bremen, 174 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Mongolia, Antwerp, 185 cs.
L. de Jonge & Co., by same, 11 cs.

BASIC PAPER

L. de Jonge & Co., Mongolia, Antwerp, 6 cs.

COLORED PAPER

C. W. Williams, Mongolia, Antwerp, 27 cs.
Corn Exchange Bank, Mt. Carroll, Hamburg, 45 cs.

WRAPPING PAPER

Wilkinson Bros. & Co., Inc., Mt. Carroll, Hamburg, 21 bls.
Chase National Bank, by same, 32 bls.
Chase National Bank, by same, 14 rolls.
F. C. Strype, Mongolia, Antwerp, 10 rolls.
F. C. Strype, by same, 20 cs.

FILTER PAPER

Bernard, Judae & Co., A. Ballin, Hamburg, 4 cs.
Scientific Materials Co., Pr. Van Buren, London, 1 cs.

SAND PAPER

H. Behr & Co., Inc., Pr. Van Buren, London, 15 bls.

TRANSFER PAPER

Sinclair, Valentine & Co., Bremen, Bremen, 4 cs.

PAPER

Whiting & Patterson, Rochambeau, Havre, 10 cs.
Van Oppen & Co., by same, 10 cs.
Rose & Frank, by same, 17 cs.
C. G. Keferstein, Bremen, Bremen, 98 rolls.
H. Reeve, Angel & Co., Inc., Vellania, London, 17 cs.
E. Dietzgen & Co., by same, 3 cs.
Blauvelt & Wiley Paper Mfg. Co., Columbia, Glasgow, 5 bls.
Perry Ryer & Co., by Same, 89 cs.
Japan Paper Co., Duilio, Genoa, 35 cs.
Falsing Paper Co., Inc., A. Ballin, Hamburg, 1 cs.
Prager Co., by same, 6 cs.
Hensel, Bruckman & Lorbacher, by same, 4 cs.
P. H. Petry & Co., by same, 8 cs.
Bendix Paper Co., by same, 23 cs.

RAGS, BAGGING, ETC.

E. J. Keller Co., Inc., Oscar II, Copenhagen, 323 bls. rags.
E. J. Keller Co., Inc., by same, 137 bls. bagging.
E. J. Keller Co., Inc., Rousillon, Bordeaux, 374 bls. rags.
Goldman, Sachs & Co., by same, 259 bls. rags.
Guaranty Trust Co., Ida, Naples, 302 bls. rags.
Strupp & Co., Hannover, Bremen, 116 bls. rags.
E. J. Keller Co., Inc., by same, 35 bls. rags.
E. J. Keller Co., Inc., by same, 107 bls. jute waste.
Chemical Nat'l Bank, by same, 290 bls. rags.
Guaranty Trust Co., by same, 584 bls. rags.
Chase National Bank, by same, 114 bls. rags.
International Acceptance Bank, Rochambeau, Havre, 131 bls. rags.
E. J. Keller Co., Inc., Montauk, Antwerp, 140 bls. flax waste.
Equitable Trust Co., Liberty, Dunkirk, 41 bls. flax waste.
D. M. Hicks, by same, 24 bls. thread waste.
E. J. Keller Co., Inc., Bremen, Bremen, 160 bls. rags.
Guaranty Trust Co., by same, 30 bls. rags.
Chemical Nat'l Bank, by same, 33 bls. rags.
Goldman, Sachs & Co., by same, 84 bls. rags.
American Exchange Nat'l Bank, by same, 34 bls. rags.
L. H. Abenheimer, by same, 220 bls. rags.
E. J. Keller Co., Inc., Mercier, Antwerp, 75 bls. rags.
National City Bank, by same, 10 bls. rags.
Brown Bros. & Co., by same, 106 bls. rags.
Goldman, Sachs & Co., by same, 358 bls. rags.
Goldman, Sachs & Co., by same, 81 bls. bagging.
Castle & Overton, by same, 50 bls. bagging.
Guaranty Trust Co., by same, 65 bls. bagging.
Guaranty Trust Co., by same, 387 bls. rags.
International Acceptance Bank, by same, 107 bls. flax waste.
International Acceptance Bank, Galileo, Newcastle, 210 bls. rags.
Castle & Overton, by same, 167 bls. rags.
Philadelphia Nat'l Bank, by same, 260 bls. rags.
Brown Bros. & Co., by same, 202 bls. bagging.
C. R. Spence, by same, 17 bls. new cuttings.
J. A. Steer & Co., Colonian, Liverpool, 61 bls. new cuttings.
McBlane & Co., by same, 56 bls. new cuttings.
Guaranty Trust Co., by same, 227 bls. new cuttings.
Guaranty Trust Co., by same, 189 bls. rags.
S. Birkenstein Sons, Mississippi, London, 112 bls. bagging.
P. J. Schweitzer, Mongolia, Antwerp, 24 bls. paper stock.
Katzenstein & Keene, Inc., Olen, St. Nazaire, 192 bls. rags.
Katzenstein & Keene, Inc., Syria, Marseilles, 139 bls. rags.
Katzenstein & Keene, Inc., A. Ballin, Hamburg, 37 bls. paper stock.
Katzenstein & Keene, Inc., by same, 49 bls. cottons.
Katzenstein & Keene, Inc., by same, 6 bls. baggings.
Waste Material Trading Corp., by same, 48 bls. rags.
E. J. Keller Co., Inc., Blydendyk, Rotterdam, 589 bls. rags.
E. J. Keller Co., Inc., by same, 212 bls. bagging.
C. B. Richard & Co., by same, 88 bls. cotton waste.
C. B. Richard & Co., by same, 52 bls. jute waste.
D. M. Hicks, by same, 112 bls. bagging.
D. M. Hicks, by same, 64 bls. rags.
Chemical National Bank, by same, 46 bls. rags.
E. Butterworth & Co., Inc., by same, 110 bls. bagging.
Goldman, Sachs & Co., by same, 62 bls. bagging.

OLD ROPE

Waste Material Trading Corp., A. Ballin, Hamburg, 13 coils.
Brown Bros. & Co., by same, 62 coils.
Brown Bros. Co., Blydendyk, Rotterdam, 92 coils.
E. J. Keller Co., Inc., by same, 42 coils.
E. J. Keller Co., Inc., Oscar II, Copenhagen, 248 coils.
W. H. Cummings & Son, Liberty, Dunkirk, 369 rolls.
W. H. Cummings & Son, by same, 66 bales.
L. H. Abenheimer, Bremen, Bremen, 44 coils.
Brown Bros. & Co., by same, 34 coils.
Brown Bros. & Co., Galileo, Hull, 487 coils.
E. J. Keller Co., Inc., Galileo, Manchester, 242 coils.
Anglo-South American Bank, Mercier, Antwerp, 76 coils.
Ellermans Wilson Line, Pr. Van Buren, London, 76 coils.

WOOD PULP

Tidewater Papermills Co., Barnholm, Liverpool, N. S., 12,350 bls. wood pulp.
Ira L. Beebe & Co., Dorothy, Port Medway, N. S., 800 tons wood pulp.
M. Gottesman & Co., Inc., Blydendyk, Rotterdam, 1,250 bls. wood pulp.

(Continued on page 62)

FOR SALE

Groundwood Mill at Forestport, N. Y. Several grinders. Production 12 to 15 tons per 24 hours dry groundwood. 1300 H.P. water power for 80% of the year. About 30 acres of land. Good mill building, country store and practically entire little settlement goes with the mill. Excellent opportunity. Can offer at reasonable price of $30,000. Inspection invited. For further particulars address

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OUR MOTTO: "SERVICE FIRST"

AUTOMATIC CONTINUOUS SCREW PRESS

FOR DEWATERING PULP

ADVANTAGES

1. AUTOMATIC—requiring a minimum of labor to operate.
2. CONTINUOUS IN ACTION—hence large saving in power and increase in capacity.
3. ECONOMICAL IN POWER—small power required to operate.
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VIKING
GREAKER NORWAY
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GREAKER SULPHITES

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SWAN
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PENNSYLVANIA
OHIO
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TENNESSEE
VIRGINIA
WEST VIRGINIA
DISTRICT OF COLUMBIA

Imports and Exports of Paper and Paper Stock

(*Continued from page 60*)

Wilsen, Lyon & Co., Inc., Bergensfjord, Kristiania, 1,000 bls. mechanical pulp.
Guaranty Trust Co., by same, 2,000 bls. mechanical pulp.

CASEIN

The Kalbfleisch Corp., Southern Cross, Buenos Aires, 3,249 bags.
T. M. Duche & Sons, Troubadour, Buenos Aires, 2,502 bags, 150,120 ks.
National City Bank, by same, 250 bags, 15,000 ks.
Atterbury Bros., Inc., Olen, St. Nazaire, 966 bags, 70,339 ks.
Atterbury Bros., Inc., Olen, Bordeaux, 817 bags, 74,286 ks.

BALTIMORE IMPORTS

WEEK ENDING MARCH 22, 1924

Parsons & Whittemore, Hannover, Bremen, 503 rolls news print.
A. Brown & Sons, Olen, St. Nazaire, 240 bls. rags.
E. J. Keller Co., Inc., by same, 138 bls. rags.
Johaneson, Wales & Sparre, Inc., Emden, Hamburg, 600 bls. sulphite pulp.
Johaneson, Wales & Sparre, Inc., Tortugas, Christiania, 150 bls. sulphite pulp.

BOSTON IMPORTS

WEEK ENDING MARCH 22, 1924

PAPER STOCK

Katzenstein & Keene, Inc., Emden, Hamburg, 337 bls. rags.
Katzenstein & Keene, Inc., Vasconia, Liverpool, 160 bls. rags.

PAPER STOCK

Train, Smith Co., Ninian, Liverpool, 74 bs. new rag cuttings, 21 bs. flax waste.
Katzenstein & Keene, by same, 37 bs. new rag cuttings.
George W. Wheelwright Paper Co., Barbadian, London, 148 bs. waste paper.
International Purchasing Co., by same, 731 coils manila rope.
A. D. Downing & Co., by same, 74 bs. old rags.
Crocker, Burbank & Co. Assn., by same, 34 bs. waste paper.
Geo. M. Graves & Co., Winifredian, Liverpool, 16 bs. old rags.
International Purchasing Co., by same, 350 coils manila rope.
Train, Smith Co., by same, 135 pkgs. manila rope, 94 bls. bagging.
Train, Smith Co., Daytonia, Liverpool, 786 bales old bagging, 11 coils manila rope.

HIDE CUTTINGS

E. F. Russ Co., Ninian, Liverpool, 243 bgs.
E. F. Ross Co., Winifredian, 709 bgs.
Ashworth, Speakman Co., by same, 65 bgs.
Ashworth, Speakman Co., Daytonian, Liverpool, 175 bgs.
E. F. Russ Co., by same, 315 bgs.

WOOD PULP

The Borregaard Co., Dania, Copenhagen, 2,500 bs. Order, by same, 4,770 bs.
Order, Arkansas, Christiania, 5,000 bs.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 22, 1924

Parsons & Whittemore, Hannover, Bremen, 91 rolls news print.
Paper House of Penna., by same, 1,078 rolls news print.
Paper House of Penna., by same, 154 cs. printing paper.
W. V. Bowater Sons, Vellania, London, 108 bls. paper.
E. J. Keller Co., Inc., Hannover, Bremen, 103 bls. rags.
E. J. Keller Co., Inc., Hannover, Stockholm, 47 bls. rags.
New York Trust Co., Hannover, Bremen, 41 bls. rags.
Castle & Overton, by same, 222 bls. rags.
Katzenstein & Keene, Inc., by same, 17 bls. rags.
Katzenstein & Keene, Inc., London Exchange, London, 279 bls. rags.
Katzenstein & Keene, Inc., by same, 65 bls. bagging.
Katzenstein & Keene, Inc., Liberty, Havre, 73 bls. rags.
Salomon Bros. & Co., by same, 72 bls. rags.
E. J. Keller Co., Inc., by same, 65 bls. rags.
D. M. Hicks, by same, 29 bls. rags.
A. Brown & Sons, by same, 105 bls. rags.
Leshner Paperstock Co., by same, 105 bls. rags.
Castle & Overton, by same, 511 bls. rags.
Castle & Overton, Emden, Hamburg, 391 bls. rags.
Castle & Overton, Gorm, Gothenburg, 223 bls. rags.
Castle & Overton, Bristol City, Bristol, 291 bls. rags.
Castle & Overton, Capulin, England, 289 bls. waste paper.
New York Trust Co., Olen, Bordeaux, 167 bls. rags.
Brown Bros. & Co., by same, 497 bls. rags.
E. J. Keller Co., Inc., by same, 274 bls. rags.
E. J. Keller Co., Inc., Fenchurch, Marseilles, 233 bls. rags.
E. J. Keller Co., Inc., Dania, Copenhagen, 445 bls. rags.
E. J. Keller Co., Inc., Emsden, Hamburg, 354 bls. rags.
E. J. Keller Co., Inc., by same, 69 bls. bagging.
E. J. Keller Co., Inc., West Arrow, Antwerp, 274 bls. rags.
Castle & Overton, by same, 216 bls. rags.
M. Friedman, by same, 47 bls. rags.
D. J. Murphy & Co., by same, 48 bls. rags.
M. O'Meara Co., by same, 37 bls. rags.
Nat'l Bank of Commerce, by same, 88 bls. rags.
H. F. Watson & Co., by same, 78 bls. rags.
Webb & Sons, by same, 27 bls. rags.
Philadelphia Nat'l Bank, by same, 122 bls. cotton waste.
E. Butterworth & Co., Inc., Colonian, Liverpool, 133 coils old rope.

NEWPORT NEWS

WEEK ENDING MARCH 22, 1924

Lagerloef Trading Co., Carlsholm, 1,860 bls., 12,569 tons chemical wood pulp.

Eddy Paper Corp. Shows Deficit

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., March 22, 1924.—A deficit of $254,021.23 after all deductions for depreciations, bond interest and taxes is shown by the Eddy Paper Corporation in its condensed statement for the year ending December 31, 1923. George M. Seaman, president, in a statement to the stockholders says that $122,932.02 is accounted for by decrease in the value of the inventory to conform with existing market prices. He adds that during the past year the general efficiency of the mills at Three Rivers and White Pigeon has been increased by the installation of new equipment.

Current assets to current liabilities are shown to be 2.73 to 1, while the book value of the no par common stock is $39.20 a share.

The condensed statement follows:

ASSETS

Cash	$118,106.26
Notes and trade acceptances	90,577.24
Accounts receivable	375,617.99
Inventories	993,522.73
Land, buildings, etc.	4,852,219.34
Misc. account	105,925.68
Organization expense, prepaid interest	70,757.86
Total	$6,606,727.10

LIABILITIES

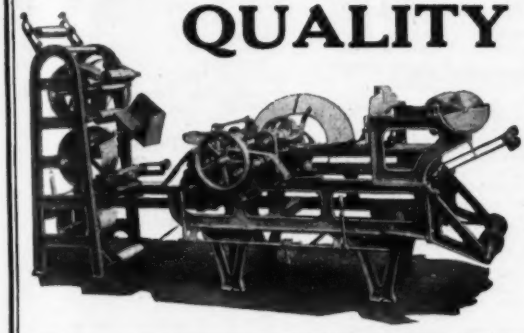
Notes payable	$300,000.00
Accounts payable	146,170.38
Accrued interest, taxes, etc.	100,709.53
1st mortgage 7½ per cent gold bonds, current maturity	30,500.00
Reserve for contingencies	28,727.17
1st mortgage bonds, due May 1, 1931	1,100,000.00
125,000 shares common stock	4,900,620.02
Total	$6,606,727.10

International Co. Gets W. S. Brooks

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 25, 1924.—William S. Brooks, for several years chief papermaker for the American Writing Paper Company, has resigned to take charge of the big plant of the International Paper Company at Niagara Falls. Mr. Brooks is considered one of the best papermakers in the country, having learned his business at the Whiting Paper Company plant at North Wilbraham, where he spent eight years working in all parts of the plant. In 1903 he was made superintendent of the Riverside Division of the American Company here, and at the death of the late Arthur M. French was made superintendent of the Linden Division, later becoming general superintendent of the fine mills of the company. About four years ago he was appointed to the position of chief papermaker.

QUALITY *plus* PRODUCTION



MR. BAG MANUFACTURER: For quality and production every machine is guaranteed, so you take no risk.
The Superintendent of a large bag plant, unsolicited, writes: "All the machines used by this Company have been furnished by you. During my fifteen years in the bag line I have used your machines, and consider them the best square and flat bag machines on the market. I see no reason why the bag manufacturers should not be satisfied with your machines. The design of the Fischer machines and workmanship are A No. 1."
Let us quote you on your requirements of flat and square, as well as satchel bottom machines for making 1/16, ⅛ and ¼ barrel sizes.

FISCHER MACHINE CO.
310-316 N. Eleventh St., Philadelphia, Pa.

The B Co. INC.

QUALITY PULPS

HAFSLUND NORWAY — "HAFSLUND BEAR" Bleached Sulphite

F:HAGA — "FORSHAGA" Bleached Sulphite

KRAFT HURUM — "HURUM SPECIAL" Extra Strong Kraft

NORWAY SPECIAL

KOOS BAC — "BAMBLE" Extra Strong Kraft

The Borregaard Company
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200 FIFTH AVENUE NEW YORK, N. Y.

THE SOURCE OF

SMALL PAPER ROLLS

OF EVERY DESCRIPTION

ADDING MACHINE ROLLS, CASH REGISTER ROLLS, TICKER TAPE, CLOCK ROLLS, BLASTING, DIE WIPING, TIRE WRAP, BED WRAP, BACKING PAPER, MAILING MACHINE ROLLS

AUTOGRAPH ROLLS, TIME CLOCK ROLLS, RIBBON PAPER, TELAUTOGRAPH, CARPET TISSUE, ROLLS FOR ANY MAKE OF AUTOMATIC REGISTERS, DOMESTIC OR EXPORT PACKING

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UNION SCREEN PLATE COMPANY

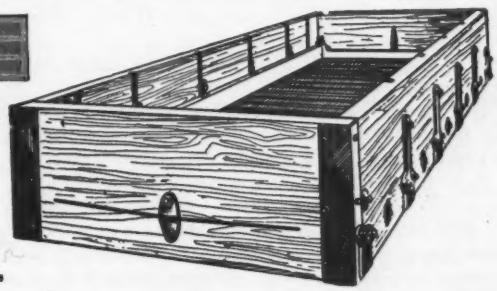
Lennoxville, P. Q. Canada

UNION BRONZE (Best phosphorized Cast Metal) **SCREEN PLATES**

Old Plates RECLOSED and RECUT to accurate gauge.
UNION BRONZE SCREWS for Screen Plates
ROLLED COPPER AND PHOSPHOR BRONZE SCREEN PLATES FOR ROTARY SCREENS
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS

THE ORIGINAL — Over One Thousand in Successful Operation
THE BEST — Recommended by Screen Makers



Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

STOCKS	BID	ASKED
Abitibi Power and Paper Company, Ltd.	62⅞	63
Abitibi Power and Paper Company, Ltd, Pfd.	103	106
American Writing Paper Company, Pfd.	1¾	2½
Brompton Pulp and Paper Company, Ltd.	39	39⅛
Donnacona Paper Company, Ltd.	245	255
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	35½	36
International Paper Company, Pfd.	62½	63
Laurentide Company, Ltd.	89	90
Price Brothers	40	41
St. Maurice Paper Co., Ltd.	94	94½
Smith (Howard) Paper Mills, Ltd.	61½	63
Spanish River Pulp and Paper Mills, Ltd.	109	109¾
Spanish River Pulp and Paper Mills, Pfd.	117	117⅜
Union Bag and Paper Corp.	52	53
Wayagamack Pulp and Paper Company, Ltd.	40	40½
West Virginia Pulp and Paper Company	53½	55

BONDS	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	99	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	92¼	93
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	104
Belgo Canadian Paper Company, 1st 6s 1943	92¼	92¾
Brown Company Serial 6s	97	98
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	92	94¾
Donnacona Paper Company, Ltd., 1st 6s 1940	97	98½
Eddy Paper Company, 1st 7½s 1931	97½	99½
Gair (Robert) Company, 1st 7s 1937	98¼	99
International Paper Company, 1st and Ref. 5s (Series "B") 1947	83¼	84
Mattagami Pulp and Paper Company, 1st 6s 1937	60	63
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 8s 1942	100¾	101¾
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	97	100
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	97	98
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94½
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	96	97¼
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	17	19
Riordon Pulp and Paper Company, Ltd., 6s 1942	71½	73
Riordon Company, Ltd., 1st and Ref. 8s 1940	65	70
River Raisin Paper Company, 1st 8s 1936	103½	105
Smith (Howard) Paper Mills, Ltd., 6s 1934	99¾	101
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	93	97
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	99	100
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	102¾	103¾
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill	
Ledgers 11.00	@38.00
Bonds 9.00	@45.00
Writings—	
Extra Superfine.. 14.00	@30.00
Superfine 14.00	@30.00
Tub Sized 10.00	@15.00
Engine Sized 8.00	@11.00
News—f. o. b. Mill—	
Rolls, contract .. 3.75	@ 4.00
Rolls, transit..... 3.75	@ 4.25
Sheets 4.25	@ 4.50
Side Runs 3.50	@ 4.15
Book, Cased—f. o. b. Mill—	
S. & S. C..... 7.25	@ 9.00
M. F. 7.10	@ 8.85
Coated and Enamel 9.00	@14.00
Lithograph 9.00	@14.00
Tissues—f. o. b. Mill—	
White No. 1 .... .80	@ .90
White No. 2 .... .85	@ .95
Colored 1.15	@ 2.00
Anti-Tarnish 1.50	@ 2.00
Kraft ..... .95	@ 1.15
Manila ..... .78	@ .85
Kraft—f. o. b. Mill—	
No. 1 Domestic.. 5.85	@ 6.20
No. 2 Domestic.. 5.15	@ 5.75
Imported 4.75	@ 5.20
Manila—	
No. 1 Jute 7.50	@ 9.00
No. 2 Jute 7.75	@ 8.50
No. 1 Wood.... 4.75	@ 5.25
No. 2 Wood.... 4.00	@ 4.50
Butchers 4.25	@ 4.75
Fibre Papers—	
No. 1 Fibre 5.50	@ 5.75
No. 2 Fibre 5.00	@ 5.25
Common Bogus.. 3.50	@ —
S. Screening 3.25	@ 3.75
Card Middles 4.00	@ 5.00

Boards—per ton—	
News 55.00	@60.00
Straw 61.00	@63.00
Chip 50.00	@55.00
Binders' Boards..70.00	@75.00
Sgl. Mla. Ll. Chip65.00	@75.00
Wood Pulp 70.00	@75.00
Container 70.00	@80.00
Sulphate Screenings—	
Coarse ..... .80	@ .90
Refined 1.75	@ 2.00
Ground Wood—	
Screenings 20.00	@25.00
Glassine—	
Bleached, basis 25 lbs. 12.00	@15.00
Bleached, basis 20 lbs. 14.00	@17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported..29.00	@34.00
(F. o. b. Mill)	
No. 1 Domestic..29.00	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—	
Bleached 3.90	@ 4.50
Easy Bleaching.. 2.75	@ 3.00
No. 1 strong unbleached 3.05	@ 3.15
No. 2 strong unbleached 2.40	@ 2.60
No. 1 Kraft 2.75	@ 3.05
Sulphate—	
Bleached 3.90	@ 4.00
(F. o. b. Pulp Mill)	
Sulphite (Domestic)—	
Bleached 3.90	@ 4.50
Easy Bleaching Sulphite 2.90	@ 3.05
News Sulphite 2.50	@ 2.80
Mitscherlich 2.90	@ 3.00
Kraft (Domestic) . 2.65	@ 2.90
Soda Bleached 4.00	@ 4.20

Domestic Rags

New

Prices to Mill, f. o. b. N. Y.	
Shirt Cuttings—	
New White,No. 1 13.00	@13.50
New White,No. 2 6.25	@ 6.75
Silesias, No. 1... 7.25	@ 7.75
New Unbleached.10.50	@11.00
Washables 5.26	@ 6.15
Fancy 6.25	@ 6.75
Blue Overall 7.15	@ 8.15
New Blue 5.00	@ 5.50
New Black Soft. 4.65	@ 5.15
New Light Seconds 2.75	@ 3.00
O. D. Khaki Cuttings 4.04	@ 4.15
Men's Corduroy.. 3.65	@ 4.00
New Canvas ... 6.40	@ 7.00
New Black Mixed. 2.50	@ 2.75
White, No. 1—	
Repacked 6.25	@ 6.75
Miscellaneous ... 5.50	@ 5.75
White, No. 2—	
Repacked 4.00	@ 4.25
Miscellaneous ... 3.50	@ 3.65
St. Soiled, White 2.80	@ 3.00
Thirds and Blues—	
Repacked 3.00	@ 3.25
Miscellaneous ... 2.35	@ 2.45
Black Stockings .. 3.00	@ 3.25
Roofing Rags—	
Cloth Strippings.. 2.30	@ 2.40
No. 1 ..... 2.05	@ 2.15
No. 2 ..... 1.25	@ 1.35
No. 3 ..... 1.20	@ 1.30
No. 4 ..... 1.20	@ 1.30
No. 5A..... 1.50	@ 1.60

Foreign Rags

New Light Silesias. 7.00	@ 7.75
Light Flannelettes.. 8.00	@ 8.25
Unbl'chd Cottons... 9.00	@ 9.50
New White Cuttings 10.00	@11.50
New Light Oxfords 7.25	@ 7.75
New Light Prints.. 6.75	@ 7.25
New Mixed Cuttings 2.50	@ 2.75
New Dark Cuttings. 2.00	@ 2.25
No. 1 White Linens 9.00	@10.00
No. 2 White Linens 7.00	@ 8.00
No. 3 White Linens 6.00	@ 6.50
No. 4 White Linens 4.00	@ 5.00
Old Extra Light Prints 3.15	@ 3.25
Ord. Light Prints.. 2.75	@ 3.00
Med. Light Prints.. 2.40	@ 2.50
Dutch Blue Cotton. 3.25	@ 3.50
German Blue Cottons 3.00	@ 3.20
Ger. Blue Linens.. 3.00	@ 3.25
Checks and Blues.. 2.00	@ 2.15
Dark Cottons ... 2.00	@ 2.10
Shoppery 1.75	@ 1.85
French Blues 3.25	@ 3.50

Bagging

Prices to Mill F. o. b. N. Y.	
Gunny No. 1—	
Foreign 1.30	@ 1.40
Domestic 1.20	@ 1.30
Wool, Tares, light.. 1.30	@ 1.40
Wool, Tares, heavy 1.40	@ 1.50
Bright Bagging.... 1.10	@ 1.20
Sound Bagging ... .90	@ 1.00
Manila Rope—	
Foreign 6.25	@ 6.50
Domestic 6.50	@ 6.75
New Bu. Cut..... 2.15	@ 2.25
Hessian Juts Threads—	
Foreign 2.00	@ 2.25
Domestic 2.00	@ 2.10

Twines

Cotton—(F. o. b. Mill)—	
No. 1 ..... .30	@ .38
No. 2 ..... .29	@ .31
No. 3 ..... .34	@ .36
India, No. 6 basis—	
Light ..... .17	@ .18
Dark ..... .16	@ .17
B. C., 18 basis.... .41	@ .42
A. B. Italian, 18 Basis ..... .51	@ .61
Finished Jute—	
Dark, 18 basis.. .29	@ .30
Light, 18 basis.. .26	@ .27
Jute Wrapping, 3-6 Ply—	
No. 1 ..... .20	@ .23
No. 2 ..... .18	@ .20
Tube Rope—	
4-ply and larger. .15	@ .17
Fine Tube Yarn—	
5-ply and larger.. .19	@ .21
4-ply ..... .20	@ .22
3-ply ..... .20	@ .22
Unfinished India—	
Basis ..... .16	@ .17
Paper Makers' Twine Balls ..... .09	@ .11
Box Twine, 2-3 ply .14	@ .15
Jute Rope ..... .15	@ .16
Amer. Hemp, 6..... .30	@ .32
Sisal Hay Rope—	
No. 1 Basis..... .14	@ .16
No. 2 Basis..... .10	@ .12
Sisal Lath Yarn—	
No. 1 ..... .14	@ .15
No. 2 ..... .11	@ .13
Manila Rope ..... .18	@ .19

Old Waste Papers

(F. o. b. New York)

Shavings—	
Hard, White, No. 1 4.10	@ 4.15
Hard, White, No. 2 3.20	@ 3.30
Soft, White, No. 1 3.10	@ 3.30
Flat Stock—	
Stitches 1.70	@ 1.80
Over Issue Mag. 1.70	@ 1.80
Solid Flat Book.. 1.50	@ 1.60
Crumbled No. 1.. 1.25	@ 1.35
Solid Book Ledger. 2.15	@ 2.25
Ledger Stock 1.90	@ 2.05
New B. B. Chips. .65	@ .80
Manilas—	
New Env. Cut... 2.45	@ 2.55
New Cut No. 1.. 1.75	@ 2.00
Extra No. 1 old. 1.30	@ 1.40
Print 1.10	@ 1.25
Container Board.. .90	@ 1.00
Bogus Wrapper.. .90	@ 1.00
Old Krafts Machine compressed bales. 2.15	@ 2.25
News—	
No. 1 White News 2.15	@ 2.25
Strictly Overissue 1.15	@ 1.25
Strictly Folded .. .85	@ .95
No. 1 Mixed Paper .60	@ .70
Common Paper ... .50	@ .60

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill	
All Rag Bond..... 35	@ 40
No. 1 Rag Bond.. 30	@ 35
No. 2 Rag Bond.. 14	@ 25
Water Marked Sulphite 9	@ 12
Sulphite Bond 7½	@ 10¾
Sulphite Ledger ... 9½	@ 12
Superfine Writing.. 18	@ 24
No. 1 Fine Writing 14	@ 18
No. 2 Fine Writing 12	@ 14
No. 3 Fine Writing 9	@ 12
No. 1 M. F. Book 5¾	@ 7½
No. 1 S. & S. C. Book 6¼	@ 7¾
Coated Book 8	@ 10
Coated Label 8	@ 10
News—Rolls, mill— 3¾	@ 4½
News—Sheets, mill 4	@ 4¾
No. 1 Manila..... 5	@ 6
No. 1 Fibre..... 5½	@ 5¾
No. 2 Manila..... 4¾	@ 5
Butchers' Manila 4½	@
No. 1 Kraft..... 6¼	@ 6½
No. 2 Kraft..... 5¼	@ 6¼
Wood Tag Boards.. 4½	@ 6
Screenings 2¾	@ 3
Boards, per ton—	
Plain Chip $47.50	@50.00
Solid news 50.00	@52.50
Manila Line Chip 57.50	@60.00
Container Lined—	
85 Test 65.00	@70.00
100 Test 70.00	@75.00

Old Papers

F. o. b. Chicago

Shavings—	
No. 1 Hard White 3.25	@ 3.35
No. 1 Soft Shav. 2.75	@ 2.85
No. 1 Mixed..... 1.25	@ 1.35
No. 2 Mixed 1.15	@ 1.25
White Envel. Cuttings 3.40	@ 3.50
Ledgers and Writings 1.65	@ 1.75
Solid Books..... 1.60	@ 1.70
No. 1 Books, Light 1.40	@ 1.50

Blanks	2.25	@	2.35
Ex. No. 1 Manila	2.35	@	2.45
Manila Envelope Cuttings	2.45	@	2.50
No. 1 Manilas	1.30	@	1.35
Folded News (over issue)	1.20	@	1.25
Old Newspaper—			
No. 1	1.10	@	—
No. 2	1.00	@	—
Mixed Papers—			
No. 1	.85	@	.90
No. 2	.80	@	.85
Straw Clippings	.90	@	1.00
Binders' Clippings	1.10	@	—
Kraft	2.20	@	2.30
New Kraft Cuts	2.50	@	—
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	42.00	@	—
No. 2	40.00	@	—
No. 3	38.00	@	—
No. 4	38.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.10	@	.60
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.06	@	.11
Book, S. S. & C.	.08	@	.15
Book, Coated	.08	@	.15
Coated Lithograph	.10	@	.15
Label	.08	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.10
No. 1 Kraft	—	@	.11
Common Bogus	.02½	@	.03
Straw Board	75.00	@	85.00
News Board	65.00	@	70.00
Chip Board	62.50	@	67.00
Wood Pulp Board. (Carload Lots)	1.25	@	1.50
Binder Boards—			
Per ton	75.00	@	80.00
Carload lots	75.00	@	80.00
Tarred Felts—			
Regular	48.00	@	50.00
Slaters	54.00	@	56.00
Best Tarred, 1-ply (per roll)	1.35	@	1.50
Best Tarred, 2-ply (per roll)	1.00	@	1.15
Best Tarred, 3-ply.	1.50	@	1.65

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.25	@	—
Domestic	1.20	@	1.25
Manila Rope	5.00	@	6.00
Sisal Rope	.75	@	.80
Mixed Rope	.75	@	.80
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy.	2.50	@	2.75
Mixed Strings	.75	@	.80
No. 1, New Lt. Burlap	1.75	@	2.00
New Burlap Cuttings	1.75	@	2.10

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	4.25	@	4.40
No. 2, Hard White	3.50	@	3.75
No. 1 Soft White	3.25	@	3.50
No. 2 Soft White	2.15	@	2.25
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.25	@	2.50
Writing Paper	2.00	@	2.25
No. 1 Books, heavy	2.00	@	2.25
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila	2.75	@	3.00
No. 1 Old Manila	1.75	@	2.00
Container Manila	1.25	@	1.50
Old Kraft	2.25	@	2.50
Overissue News	1.25	@	1.35
Old Newspaper	.90	@	1.00
No. 1 Mixed Paper	1.00	@	1.10
Common Paper	.80	@	.90
Straw Board, Chip	1.00	@	1.10
Binders Bd., Chip.	1.00	@	1.10

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.12	@	.12¼
New White, No. 2	.07	@	—
Silesias, No. 1	.07¼	@	.07½
New Unbleached.	.10	@	.11
Washables	.04½	@	—
Fancy	.05¼	@	.05½
Cottons—according to grades—			
Blue Overall	.03½	@	.05¼
New Blue	.02¼	@	.02¾
New Black Soft.	.05¾	@	.06½
New Light Seconds	.02¾	@	.02¼
Khaki Cuttings	.01	@	.04½
Corduroy	.03½	@	.04
New Canvas	.08¼	@	.08¾
New Black Mixed	.04	@	—
Old White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous	.04½	@	.04¾
White, No. 2—			
Repacked	.03½	@	.04
Miscellaneous	.03	@	.03¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	2.15	@	2.35
Black Stockings	2.75	@	3.00
Roofing Stock—			
No. 1	1.35	@	1.40
No. 2	1.25	@	1.30
No. 3	.75	@	.90
No. 4	1.15	@	1.20
No. 5A	1.10	@	—
B			nominal
C			nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.09	@	.63
Ledgers	.09	@	.55
Writings	.08½	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C.	.07¼	@	.12
Books, M. F.	.07¼	@	.09½
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	40.00	@	45.00
News, Vat Lined	40.00	@	47.50
Wood, Vat Lined	50.00	@	55.00
Filled News Board	42.50	@	47.50
Solid News Board, No. 4 Finish	60.00	@	—
S. Manila Chip	60.00	@	67.50
Pat. Coated News	80.00	@	90.00
Mixed paper	.60	@	.62½
Folded news	.70	@	.72½
Soft white shavings	2.80	@	3.00
Hard white shavings	3.60	@	4.00
Kraft paper	2.00	@	2.10
Ledger and letter	2.15	@	2.35
No. 1 books and magazines	1.55	@	1.70
Manila paper No. 1	1.75	@	1.80
Solid ledgers	2.50	@	2.75
No. 1 roofing rags.	2.25	@	2.35
No. 2 roofing rags.	2.10	@	2.25
No. 3 gunny bagging	.90	@	1.05
No. 4 Brussels and hard back carpets	.140	@	1.50
No. 5 roofing rags			
A's	1.65	@	1.80
B's	—	@	—
C's	—	@	—
No. 6 City dump rags	—	@	—
Manila rope, domestic	.06	@	.06½
Mixed strings	1.15	@	1.25
Jute strings	1.30	@	1.40

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rag	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$34.00	@	36.00
Sulphite easy bleaching	55.00	@	60.00
Sulphite news grade	52.50	@	55.00
Sulphite, bleached.	75.00	@	80.00
Sulphite	60.00	@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut.	4.00	@	—
Soft White Book shavings	3.20	@	3.30
White Blk. News	2.15	@	2.20
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.35	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	1.85	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	—	@	2.00
Printed Manilas.	1.55	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	—	@	.75

Domestic Rags—

Price to mills, f. o. b. Toronto

	Per lb.		
No. 1 White shirt cuttings	.12¾	@	.13
No. 2 White shirt cuttings	.06½	@	.07
Fancy shirt cuttings	.06¼	@	.06½
No. 1 Old Whites		@	
Third and blues.	.03¼	@	.03½
	Per cwt.		
Black stockings	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06¼	@	.06½
No. 2	1.55	@	—

York Haven Paper Co. Transferred

[FROM OUR REGULAR CORRESPONDENT.]

YORK, Pa., March 21, 1924.—The deed transferring the property of the York Haven Paper company at York Haven, on February 29 to the Continental Paper and Bag Mills corporation, was entered for record Saturday of last week in the office of Recorder of Deeds J. Q. A. Spangler. At the same time a copy of a first refunding mortgage and deed of trust by the Continental Paper and Bag Mills corporation to the Chase National Bank of the City of New York, covering a bond issue of $12,000,000 was entered for record.

The Continental Paper and Bag Mill corporation is chartered under the laws of Delaware and has offices in Dover, Del., and New York city. In the deed recorded Saturday this concern takes over all of the land and water rights of the York Haven company as well as its mill and equipment thereon erected.

The mortgage is one of the largest papers ever entered in the recorder's office. It is printed on 226 pages in small type. The mortgage is to cover an issue of $12,000,000 first and refunding mortgage gold bonds. It is filed in the York county offices because of the property now owned by the corporation in York Haven. The mortgage is backed by large properties including mills, water rights and timber tracts in the states of Maine, Michigan, New Hampshire, Wisconsin, Pennsylvania and New York.

W. F. McQuillen Injured

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 24, 1924.—The many friends, and they count everyone in the paper industry, of W. F. McQuillen, of A. Storrs & Bement Company of Boston, Mass., will regret to learn of a most unfortunate mishap with which he met a week ago. While crossing School street, Boston, he was struck by an automobile, resulting in a broken arm and badly sprained ankle. His recovery is progressing as rapidly as could be expected, and he hopes to be able to maintain his unbroken record of consecutive attendance at the annual convention in April.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, MARCH 26, 1924.

The paper industry still continues rather slower than it should be for this time of year and prominent members of it are busy trying to find out just what seems to be the trouble. There is a general feeling that while business is good it is not up to what it usually is at this season in a perfectly normal year.

The dullness is ascribed to a number of things, but the chief fault seems to lie in Washington. The business of the whole country was ready for tax reduction and it failed to get it. There is lack of confidence in the air everywhere and with a presidential year ahead this is tending to breed little but controversy and suspicion.

There is another element in the situation which many paper men seem to feel has something to do with the present lack of spirit in the industry and that is the so-called "paper bootlegging." The whole thing seems to be simmering down a controversy between certain local and powerful importers and certain other equally powerful domestic men.

When Mark Twain was once asked what he thought of heaven and hell he is said to have refused to commit himself on the ground that he "had friends in both places." This is the situation of most of the trade publications. This paper, however, stands squarely for fair play and justice no matter what the cost.

It has never discussed these charges against the importers before, but now they appear to have become a factor in the general market situation and it is necessary to do so. This does not mean that there are any grounds for either believing or disbelieving the accusations, but the talk about them does appear to have stirred up a good deal of unrest. The only comment to make is that after all nothing has been proved. Let the domestic men remember this and let the importers look within their own ranks and clean house should it become necessary. If there is paper being brought into this country declared as one thing and sold as another it might be well to point out that those who do so may be disciplined not only under the customs regulations but also through the Federal Trade Commission for false advertising.

As for the details of the market situation there is little to be said that is new. Things are moving at about the same rate that they have been for some time which is not quite so rapidly as they should be. Production is going along satisfactorily and the ultimate demand appears to be good, but somewhere in between there is a little friction.

News print still continues to be about the livest proposition on the local market in spite of the discomfort that was caused to certain individuals by the merger of *The Tribune* and *The Herald*. It is interesting to note that since that merger the actual consumption of news print in the local field has increased slightly rather than decreased. *The Tribune* before the merger was said to have a circulation of between a hundred and thirty and a hundred and forty thousand. *The Herald* had something like a hundred and fifty or a hundred and sixty thousand readers. Since the combined publication has been coming out it has had well over three hundred thousand readers, in fact it is said to have had about three hundred and thirty thousand on the first day.

Fine papers are also moving fairly well and manufacturers say that they have every reason to believe that they will continue to do so. These papers always appear to be in pretty steady demand anyway and so far as can be seen they are going to continue so for the next few weeks at any rate.

Book paper is also in fairly good demand. The large magazines seem to be printing large runs and there are numerous other magazines rapidly entering the field and apparently they are achieving success. True Stories, which has been in existence a comparatively short time is said to have given a print order of two million for its June issue. Mr. Hearst is reported to have bought the Smart Set and this will probably mean an increase in circulation with a consequent greater demand for paper.

Kraft and the other coarse papers appear to be in fairly good shape considering the vicissitudes of the past few months, there is a good and a growing demand reported for most of the grades and prices remain just about the same. The same situation exists in the tissue market. Apparently there is less over production there at the present time and of course this is always one of the troubles of the tissue manufacturers and dealers.

Board is also jogging along at just about the same rate of speed with no real changes in either the one direction or the other. This branch of the paper trade always has its ups and downs but it appears to have had less of them recently. It is reported that the board men are planning to join with an organization which will tend to stabilize them somewhat and bring about greater cooperation than they have ever been able to achieve before.

Mechanical Pulp

The price of mechanical pulp has not undergone any real change during the past week. There appears to be less uncertainty among dealers and manufacturers of this product which would indicate that the demand is fairly firm. There is nothing to show that there are any radical changes of any kind due to occur in ground wood.

Chemical Pulp

Sulphite is in somewhat better demand this week than it was a short time ago and buyers are showing more interest. This was to be expected since it was fairly certain that the surplus supplies which held the market back for a long time have now been pretty well used up. The other pulps, too, are doing well. This may be due to the fact that a number of elements are contributing to the cutting down of foreign competition at this particular time. Norway and Sweden always do less shipping in the winter when their ports are almost all closed up with ice and the ships tied up at the wharves. Added to this was a strike in the former country which caused some loss to production.

Old Rope and Bagging

Old rope is still in quite good demand with the prices fairly regular and buying steadier than it has been. The same is true in bagging particularly in some of the better grades. There is nothing to indicate that there is going to be any real change for the time being at any rate although the normal state of this market is such that it is difficult to tell what it is going to do from one week to the next.

Rags

Rags have been a little off but they now seem to be showing signs of improvement. At both the top and the bottom the demand is improving. New rags have been in greater call and the roofing mills appear to be coming into the market with more strength. Prices have been subject to some minor fluctuations and in some instances have gone up. Dealers are satisfied with the situation and say that they believe the present indications of betterment are going to develop a strong market in the near future.

Waste Paper

Waste paper is also holding up fairly well. There have been no changes that might be classed as radical, but a few of the commodities have gone up a little. Shavings are moving fairly well as are some of the better grades of news. The low grades have not quite kept up with the higher, but there is reason to believe that they will improve within a short time.

To Be Manager of Analomink Paper Co.

NORTH WATER GAP, Pa., March 24, 1924.—The appointment is announced under date of March 17, of Leonard Mann to be general manager of the Analomink Paper Company at this place.

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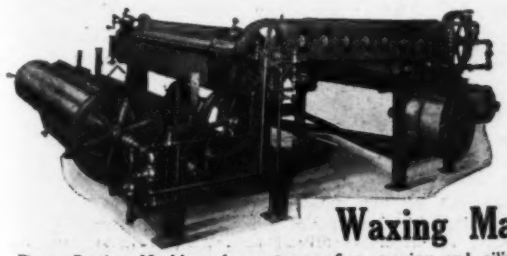

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, MARCH 26, 1924.

Many changes have taken place in the chemical market during the past ten days, among them a number of upward revisions in prices. There seems to be no correspondingly great increase in the demand to justify this but it has been known for a long time that there were bound to be price increases. Many of the chemicals had gone down to a point where it was next to impossible for dealers to make any money out of them. Those that could be stored were put in warehouses to await better times.

BLEACHING POWDER.—Bleach is one of the commodities which has gone up in price. There seems to be a good demand for it outside of the paper industry and that is showing definite signs of interest now. The present quotation is from 1.90 to 2.05 cents a pound in large drums and from 2.15 to 2.25 cents in small.

CAUSTIC SODA.—Caustic has remained just about the same during the week without much change in either the one direction or the other. The demand is steady but is said to be a little smaller than it should be. The price is still 3.10 to 3.15 cents on a flat basis at the works.

CASEIN.—In opposition to some of the other articles on this market casein has been somewhat depressed during the week. The price instead of going up has gone off a little and buying still remains rather slow. It is now possible to get casein in New York at from 11 to 12 cents a pound.

CHINA CLAY.—Buying has not been quite so good in the china clay market during the past few weeks. While there has been no great falling off in demand there is a tendency on the part of paper men to hold off for a time. It may be that there are surplus supplies at the paper mills and that it is merely a question of when these will be used up before the buying begins with some strength once more. The price remains at from $12 to $15 a ton on the domestic grades and about $16 to $20 on the imported.

CHLORINE.—Chlorine once more has taken an upward rise and dealers say that the demand is fairly good. There seems to be rather close competition for some of the lots that have been passing through the local market during the week. The price is now quoted at from 4.50 to 5.50 cents a pound in tanks.

ROSIN.—Rosin has fallen off a little in price and the paper manufacturers appear to have enough of it on hand to suit their immediate needs. The price in 280 pound barrels is now at about $5.75 to $5.85 which is a considerable falling off.

SALTCAKE.—Saltcake is moving along just about as it has all along. While the paper industry is not buying as much as might be expected this is never so serious as if the dealers and works had surplus lots of other chemicals on hand. While many of the others will not keep without loss it is comparatively simple to store saltcake. The price is from $20 to $23 a ton still with no signs of any change.

SODA ASH.—Ash is still about the same as it has been for some weeks past with no changes either in market condition or in price which remains at 1.38 cents a pound on a flat basis.

SULPHATE OF ALUMINA.—Alumina is still in about the same demand with a slight falling off in price on the low grades. Commercial is now selling at from 1.15 to 1.30 cents while iron free is quoted at from 2.10 to 2.25 cents a pound.

Superintendent of Vancouver Mill

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., March 24, 1924.—Fred H. Fuller, well known paper manufacturer of this section, formerly connected with Bagley & Sewall Company and also superintendent of the Carthage Tissue Paper Company mills, is now superintendent of the new Columbia River Paper Company mill being started at Vancouver, Wash., a short distance from Portland, Ore.

Open Top Cars for Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 24, 1924.—Open top cars for the shipment of pulpwood to New York State paper mills will be provided, and the feared withdrawal of this type of railroad equipment will not be carried into effect. This was the announcement made at the meeting of the Middle Atlantic States Regional Advisory Board by A. H. Campbell of the International Paper Company, chairman of the paper and pulp commodity committee.

It is interesting to note that this problem of the paper manufacturers was the first to be settled through the organization during the last few weeks of the Advisory Board for this region. The Board is composed of shippers and railroad representatives, working together in an effort to solve the problem of adequate car supply to meet the shipping requirements of the region.

In making his report, Mr. Campbell merely called attention to the fact that the question of the supply of open top cars, which has been before the paper mills for eight months, without solution, has been readily solved through the agency of the Regional Advisory Board in five weeks.

After Mr. Campbell had reported, however, W. J. L. Banham, general chairman of the Board, commented that the chairman of the Paper and Pulp Committee had been altogether too modest, for through his aggressive work the first specific question to arise since the formation of the Advisory Board had been settled satisfactorily to all parties, and added that the question involved complications which made it not only the first such problem to be solved, but one more than ordinarily difficult to adjust.

The question of open top cars was submitted to the Paper and Pulp Committee by other paper mills than those of the company Mr. Campbell himself is connected with.

Peerless Paper Mills Move

NORRISTOWN, Pa., March 24, 1924.—The Peerless Paper Mills have moved into new quarters at Oaks, Montgomery County, Pa., about six miles from their former location at Norristown, bringing a new enterprise to this small manufacturing town in the form of an organization which is one of the pioneers of the toilet paper industry, whose start dates back to 1898, as The Peerless Manufacturing Company. In their new location, they have secured the factory constructed and formerly occupied by The Keystone Motor Truck Company; the building being of modern daylight one-story construction, with a floor space of approximately 50,000 square feet, all of which will be utilized by this company in the manufacture of its line of high grade toilet paper and paper towels.

Excellent transportation facilities are afforded by sidings from both the Philadelphia and Reading and Pennsylvania roads, enabling them efficiently and promptly to serve the requirements of their distributors.

The Peerless Paper Mills is a recent reorganization of the Peerless Manufacturing Company, established by the late J. Cloude Smith and for many years located in Philadelphia, moving to Norristown, Pa., 1911, where they have remained until the present time. Lewis I. Rossiter is president and general manager of the reorganized company; Albert P. Wilson, treasurer, and I. J. Sheppard, secretary and sales manager.

Holyoke News of the Industry

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 25, 1924.—J. Bertram Newton left last week to take up his new position as general manager for the Chillicothe, Ohio, mill of the Mead Paper and Pulp Company.

A certificate of incorporation has been granted to the Eastern Specialties Company of this city to deal in paper of all kinds. The firm will have a capitalization of $5,000. The incorporators are Charles E. Desmarais, president; John N. L. Carriers, vice-president, and Paul N. Desmarais, treasurer.